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Priority Migratory Bird Habitats of Canada's Prairie Provinces

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ABSTRACT

This report identifies the more important known migratory bird habitat areas and sites within the provinces of Alberta, Manitoba and Saskatchewan.

Important habitats for the following species groups of migratory birds are included: waterfowl breeding, moulting and staging areas or sites for ducks and geese, and including sandhill cranes; colonial waterbird breeding and staging sites for grebes, pelicans, cormorants, gulls and terns; rare, threatened and endangered species breeding areas or sites for 11 species of birds; shorebird staging sites; non-game bird breeding areas, primarily for passerines.

Each area or site is ranked - on the basis of the most current and verifiable biological data - into categories of national, regional or local importance. Areas and sites are further organized by ecological land units - "ecoregions" and "habitat subregions" within a framework of broad geographic "ecozones."

Various users of this migratory bird information may examine specific sites and species of concern, and/or review larger geographic districts for critical habitat areas, sites or species' values.

User groups and agencies are encouraged to submit new information to the Canadian Wildlife Service to assist in preparation of an update to this report.

RÉSUMÉ

Le présent rapport fournit une description des principaux emplacements et régions des habitats d'oiseaux migrateurs dans les provinces de l'Alberta, du Manitoba et de la Saskatchewan.

Les recherches ont porté sur les habitats suivants: les aires de reproduction et les sites de nidification, de mue et repos des canards, des oies et des bernaches, et des grues; les sites de nidification et de repos des grèbes, des pélicans, des cormorans, des goélands, des mouettes et des sternes; les aires de reproduction et les sites de nidification d'onze espèces d'oiseaux rares, menacés ou en danger de disparition; les sites de repos des oiseaux de rivage; les aires de nidification des oiseaux non considérés comme gibier et plus particulièrement des passereaux.

On a classé chacune de ces aires et chacun de ces sites, selon leur importance locale, régionale ou nationale, en se fondant sur les données biologiques les plus récentes et vérifiables. Les aires et les sites ont également été regroupés par unités territoriales écologiques, «régions écoclimatiques» et «sous-régions d'habitats», à l'intérieur de grandes «écozones» géographiques.

Ceux qui utilisent ces renseignements sur les oiseaux migrateurs peuvent étudier des sites et des espèces auxquels ils s'intéressent particulièrement, ou encore passer en revue de plus grands districts géographiques aux fins de l'évaluation des espèces, des sites ou des habitats.

On demande aux groupes d'utilisateurs et aux organismes compétents d'envoyer tout nouveau renseignement au Service canadien de la faune afin d'aider à la mise à jour du présent rapport.

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We are particularly indebted to G.D. Adams, CWS, for guidance, relevant publications and draft Prairie-wide maps delineating ecological units; and to S.C. Woynarski for assistance in many phases of generating this report.

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TABLE OF CONTENTS

		Page
	Abstract / Résumé	iii
	Acknowledgements	iv
	Table of Contents	v
	List of Figures	vi
	List of Tables	vii
	User's Guide	viii
1.0	Introduction	1
2.0	Methods	2
	2.1 Database	2
	2.2 Ecological Land Classification	2
	2.3 Migratory Bird Site Priorities	3
	2.4 Ranking of Habitat Subregions	4
	2.5 Illustrative Mapping	4
3.0	Important (Ranked) Migratory Bird Habitats of the Prairie Provinces	5
4.0	Habitat Use by Waterfowl	30
	4.1 Duck Breeding	30
	4.2 Duck Moulting	35
	4.3 Duck Staging	35
	4.4 Goose Breeding	35
	4.5 Goose Moulting	50
	4.6 Goose Staging	50
	4.7 North American Waterfowl Management Plan	63
	4.8 Sandhill Cranes	64
5.0	Habitat Use by Colonial Waterbirds (Grebes, Pelicans, Cormorants, Herons, Gulls and Terns)	66
	5.1 Breeding	66
	5.2 Staging	74
6.0	Habitat Use by Rare, Threatened and Endangered Species (Peregrine Falcon, Whooping Crane, Piping Plover, Mountain Plover, Ferruginous Hawk, Burrowing Owl, Loggerhead Shrike, Least Bittern, Trumpeter Swan, Ross' Gull, Caspian Tern)	81
	6.1 Breeding	81
7.0	Habitat Use by Shorebirds	95
8.0	Habitat Use by Non-game Birds (primarily passerines)	99
	8.1 Breeding	99
	8.2 Staging	101
9.0	Concluding Remarks	102
10.0	Literature Cited	104
11.0	Map Pocket	back cover

LIST OF FIGURES

Figure		Facing Page
1	Ecozones and ecoregions of the Prairie provinces	2
2	An overview of *Prairie-wide* habitat subregions ranked for migratory bird importance	6
3	Duck breeding habitats	32
4	Duck moulting habitats	36
5	Duck staging habitats	40
6	Goose breeding habitats	50
7	Goose staging habitats	56
8	Target areas for implementation of the North American Waterfowl Management Plan in the Prairie provinces	64
9	Priority sites and habitat subregions of breeding colonial waterbirds	66
10	Staging sites or summer concentration areas (other than breeding colonies) of colonial waterbirds	76
11	Habitats of breeding populations of threatened species	82
12	Staging shorebird habitats	96
13	Prairie-wide location map with Ecological Land Classification boundaries	map pocket

LIST OF TABLES

Table		Page
1	Numbers of habitat subregions, by province, of National, Regional and Local importance for migratory birds	5
2	*Alberta* habitat subregions important for migratory birds	6
3	*Manitoba* habitat subregions important for migratory birds	8
4	*Saskatchewan* habitat subregions important for migratory birds	9
5	Migratory bird habitat subregion priorities for the entire Prairie provinces	11
6	Habitat subregions and sites - breeding ducks	32
7	Sites and habitat subregions - moulting ducks	36
7a	Sites of local importance for moulting ducks	37
8	Sites and habitat subregions - staging ducks	40
8a	Sites of local importance for staging ducks	45
9	Habitat subregions and sites - breeding geese	51
9a	Sites of local importance for breeding geese	52
10	Sites and habitat subregions - moulting geese	54
11	Sites and habitat subregions - staging geese	56
11a	Sites of local importance for staging geese	59
12	Priority sites - breeding colonial waterbird species	67
13	Criteria for, and numbers of important sites for breeding concentrations of species of gulls and terns	75
14	Criteria for, and numbers of important sites for non-breeding concentrations of species of colonial waterbirds	76
15	Non-breeding concentrations of colonial waterbirds	77
16	Habitats of breeding threatened species	83
17	Breeding sites of the Caspian Tern in the Prairie provinces	94
18	Sites and habitat subregions - staging shorebirds	96
18a	Sites of local importance for staging shorebirds	98
19	Breeding habitats of endemic Non-game migratory birds with greater than one-half of their North American range in the Prairie provinces	100

USER'S GUIDE

The following suggestions are to assist in use of this report.

General:

1 a) All ecoregions and habitat subregions are listed in numerical sequence.

b) The prefix for each ecoregion is as shown in Figure 1 and Table 5 (e.g., prefix "3" denotes the Fescue Prairie Ecoregion, which contains, among others, habitat subregions 3.01 / 3.04 / 3.08).

c) Each habitat subregion has a unique number and name (e.g., 3.01 Elkwater Lake Upland; 20.05 Upper Saskatchewan Delta).

2 a) In Tables 2 to 4, any habitat subregion that is bisected by a provincial border has **bold** print indicating the location of the larger proportion. Similarly, bold print identifies point totals for National and Regional subregions.

b) In most remaining tables, any subregion bisected by a provincial border is "flagged" with **bold** print to indicate the site location (e.g., an **A-S** site is in Alberta).

3 a) In the "Wetland site(s)" column of most tables, multiple sites within a habitat subregion are in alphabetic order; except colloquial names (in quotations) which are last.

Application:

IF YOU:

1 ***know the name or location of a site or area and seek information on its general importance for migratory birds:***

a) Check the large-scale Prairie-wide location map with Ecological Land Classification boundaries (Figure 13) in the map pocket of the back cover. Affix a location to the site or area, then identify the appropriate unit number. If more detail is required, consult N.T.S. Mapsheets of the 1:250 000 scale, available elsewhere. Another refined approach for location of lakes, islands and rivers, or portions thereof (and adjacent lands, such as points), is to consult the Gazetteer of Canada (for Alberta, Manitoba and Saskatchewan). That publication, for the Canadian Permanent Committee on Geographical Names, is produced by the Geographical Services Division, Canada Centre for Mapping, Department of Energy, Mines and Resources Canada, Ottawa. It is available in libraries. In this report, wetlands unnamed in the above sources usually have their land locations identified by: T=Twp., R=Rge., and M = Mer., accompanying the site name in tables.

b) Refer to Table 5, pages 11 to 29, for the sequential listing of habitat subregions with collective values of sites or areas by species groups of migratory birds. (Abbreviations are: N = national importance; R = regional importance; L = local importance.)

c) Select appropriate Chapters for factual data and importance ratings. The overall importance of a site or area should become apparent.

d) As an example: select Beaverhill Lake, Alberta; Shoal Lakes, Manitoba; and/or Regina, Saskatchewan. With the unit numbers obtained from the Prairie-wide location map (4.20 / 4.81 / 2.58) a check of Table 5 will identify groups of migratory bird species discussed in specific Chapters. (Note that Beaverhill Lake Plain, Shoal Lakes Plain and Regina Plain are important habitat subregions for all species groups of migratory birds.)

2 ***are interested in a species group of migratory birds, and seek knowledge of its ecology, distribution and status:***

a) Refer directly to the appropriate Chapter(s).

3 ***want migratory bird information for a general topographic area "ecoregion" or "habitat subregion":***

a) Identify the map unit number(s) on the Prairie-wide location map, see Table 5, then refer to appropriate Chapters.

b) River valley segments that are commonly known have their unique identification numbers included in all tables and in the text; however, these numbers are not on the Prairie-wide location map due to space limitations.

4 ***seek to compare "ranked" area values by habitat subregion within each province:***

a) Refer to Figure 2; the breakdown of provincial distribution in Table 1; and Tables 2, 3 and 4.

1.0 INTRODUCTION

Conservation and protection of habitats for migratory birds are essential elements in wildlife management, for collectively many habitats are required to support healthy bird populations. However, some areas and/or sites used by species at critical points in their annual cycle, for example, during breeding, moulting and staging, are more easily identified.

Environment Canada, through the Canadian Wildlife Service (CWS), has the leading role in migratory bird management within the authority of the Migratory Birds Convention Act and Regulations of 1917. Furthermore, the Canada Wildlife Act of 1973 enables cooperative preservation of wildlife populations and habitats.

The Provincial governments of Prairie Canada - Alberta, Manitoba and Saskatchewan - conserve many wildlife habitats, including those of migratory birds, directly through provincial ownership and indirectly through regulatory authority. Policies on land-use and economic development can influence large areas within the settled portions of provinces as well as vast areas of northern "wilderness."

Non-government organizations - including, Ducks Unlimited Canada, Wildlife Habitat Canada, World Wildlife Fund Canada, Canadian Wildlife Federation and Canadian Nature Federation - contribute substantially, and on an ongoing basis, to the conservation and management of migratory bird habitats.

Intensification of agriculture in recent years has resulted in a significant loss of migratory bird habitat: land-use practices coupled with dry climatic conditions have inflicted a dramatic impact on habitat - particularly in southern portions of the Prairie provinces (Millar 1986, Turner *et al.* 1987). Severe drought conditions of the southern Prairie provinces in the 1980s have caused many wetlands, both small and large, to become dry, which adversely affects productivity for many species of migratory birds. Old Wives Lake, a large wetland in southern Saskatchewan, is virtually dry for the first time in over 50 years. Wetlands with extremely low water levels are, however, expected to rapidly recover once moisture conditions improve, so their importance ratings in this report are unaffected by such "temporary" drying. Should future trends suggest a site does not fully recover from the drought conditions, it will be appropriately downgraded or removed as a priority.

No single agency, organization or nation is capable of protecting all the habitat necessary to sustain all migratory bird populations. However, a trend toward cooperative wildlife conservation programs has emerged in Canada, and elsewhere, in response to the complexity of the problem and its solution. Some recent initiatives include: the North American Waterfowl Management Plan (Anonymous 1986), the Heritage Marshes Programs, Wetlands for Tomorrow, Wild West and the Prairie Conservation Action Plan (Anonymous 1988).

In Alberta and Saskatchewan, provincial wildlife staff have identified important habitats for some wildlife species under "Key Wildlife Areas" and the "Critical Wildlife Habitat Act" programs, respectively. In Saskatchewan, lands designated under the Act have the force of law protecting them.

This document identifies important migratory bird habitats throughout the Prairie provinces and prioritizes them in relative importance, using data provided prior to January 1990. It is an update to and broadening of the report "Migratory Bird Habitat Priorities; Prairie Provinces" (Canadian Wildlife Service 1979) which was an initial assessment of migratory bird habitat priorities of the Prairie provinces.

2.0 METHODS

2.1 Database

The bird species included are **species protected under the Migratory Birds Convention Act** of 1917 (Canadian Wildlife Service 1980). Some species under provincial jurisdiction are also included: **raptors** identified as species of concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC); and **pelicans and cormorants**, whose nesting colonies are vulnerable to human disturbance.

Recent databases (including Adam *et al.* 1988, Ealey 1986, Nickels and Adams 1987) provided a comparable coverage by province of sightings, censuses and periodic surveys; but the thoroughness varied, and therefore some personal communications with knowledgeable biologists were pursued to fill in data gaps.

2.2 Ecological Land Classification

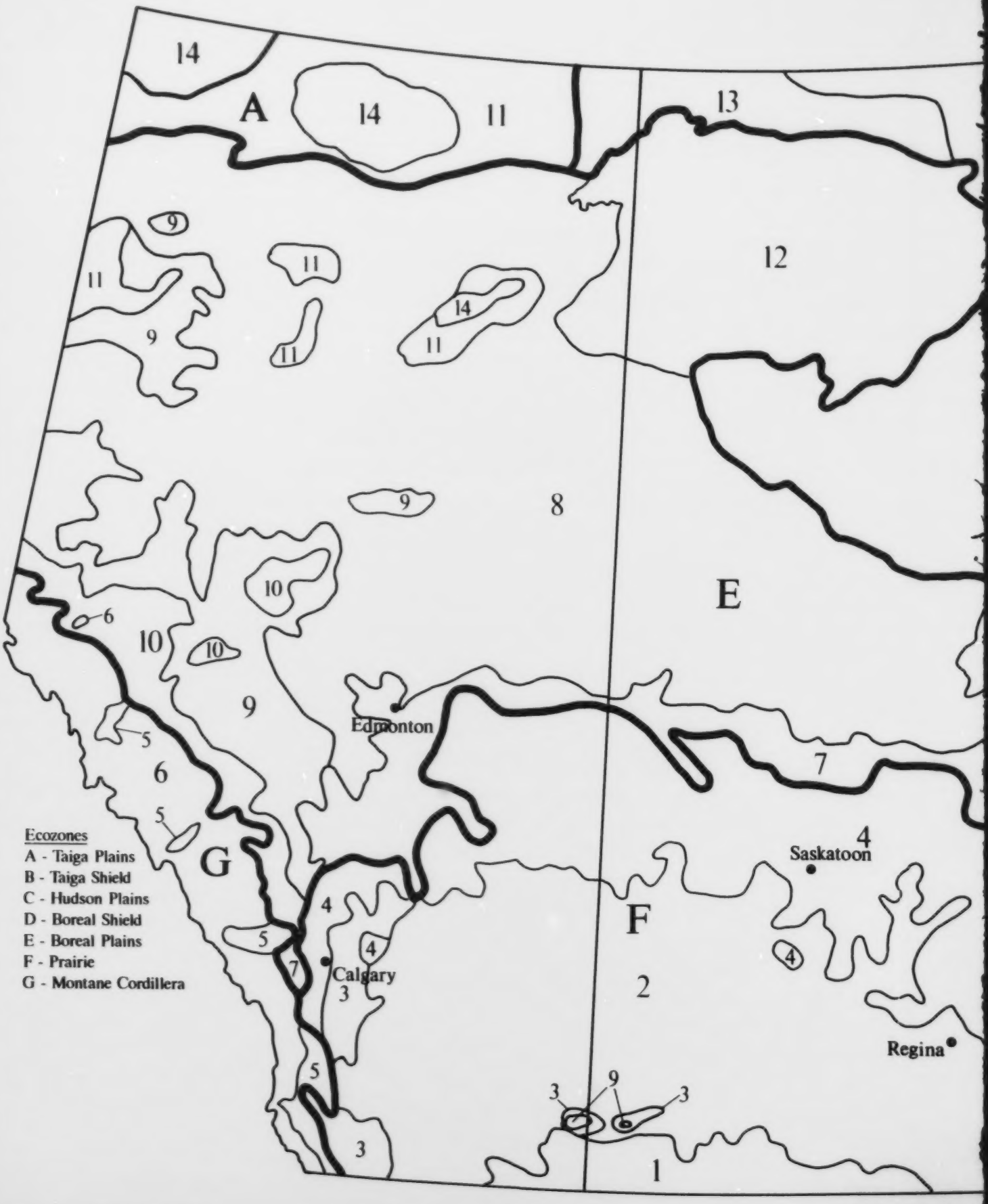
The **Ecological Land Classification** (ELC) is based upon the Geographic Information Systems (GIS) approach as described in Stelfox and Ironside (1988), and upon background mapping of ecological "ecoregions" and "habitat subregions" for the Prairies (Adams 1985, 1988). Accordingly, the wide range of biophysical land-based characteristics are mapped hierarchically (as in **Figure 1**) as follows:

> **Ecozone** is a broad geographic mapping unit that provides a basis for national perspectives and compares major differences in physical geography (substrate structure, macroclimate, soil zones and plant formations) (Wiken 1985). There are seven ecozones in the Prairie provinces: *Taiga Plains, Taiga Shield, Hudson Plains, Boreal Shield, Boreal Plains, Prairie, and Montane Cordillera*. The Prairie Ecozone does not occur elsewhere in Canada.
>
> **Ecoregion** is a regional landform with ecologically distinct soils, fauna and macroclimatic influences. Each reflects a combination of gradients such as elevation, surface materials and vegetation. Consistency across provincial boundaries is accomplished by adjusting boundaries to coincide with the Mid-boreal Transition of Zoltai (1975), and Millar's (1976) Parkland-Grassland.

In the Prairie provinces, **22 ecoregions** comprise over 1.9 million square kilometres (km^2). The predominant ecoregions are: *Mid-boreal Mixed-woods* (19 percent of total area), *High Boreal Precambrian* (17 percent), Parkland (11 percent) and *Mixed-grass Prairie* (10 percent); there are 18 other ecoregions (42 percent of the area) at proportions ranging from 0.5 percent to 6.5 percent. Broad regional management planning is most effective at the ecoregion level (Adams 1988), and accordingly, this report incorporates the land-base importance by ecoregion (sequentially from 1.01 to 22.202 in reference listings).

> **Habitat subregion** (Pedocan 1983) is a landscape division primarily based on soils of an ecoregion (Shields and Lindsay 1986). It is distinct on the basis of elevation, relief, landform, drainage and general substrate. Examples of habitat subregion components are glacio-fluvial plain, hummocky moraine and bedrock-controlled plateau.

There are **542 habitat subregions** - including 53 segments of river valleys considered apart from adjacent uplands, and eight large lakes or portions thereof.


Ecozones
A - Taiga Plains
B - Taiga Shield
C - Hudson Plains
D - Boreal Shield
E - Boreal Plains
F - Prairie
G - Montane Cordillera
Edmonton
Calgary
Saskatoon
Regina

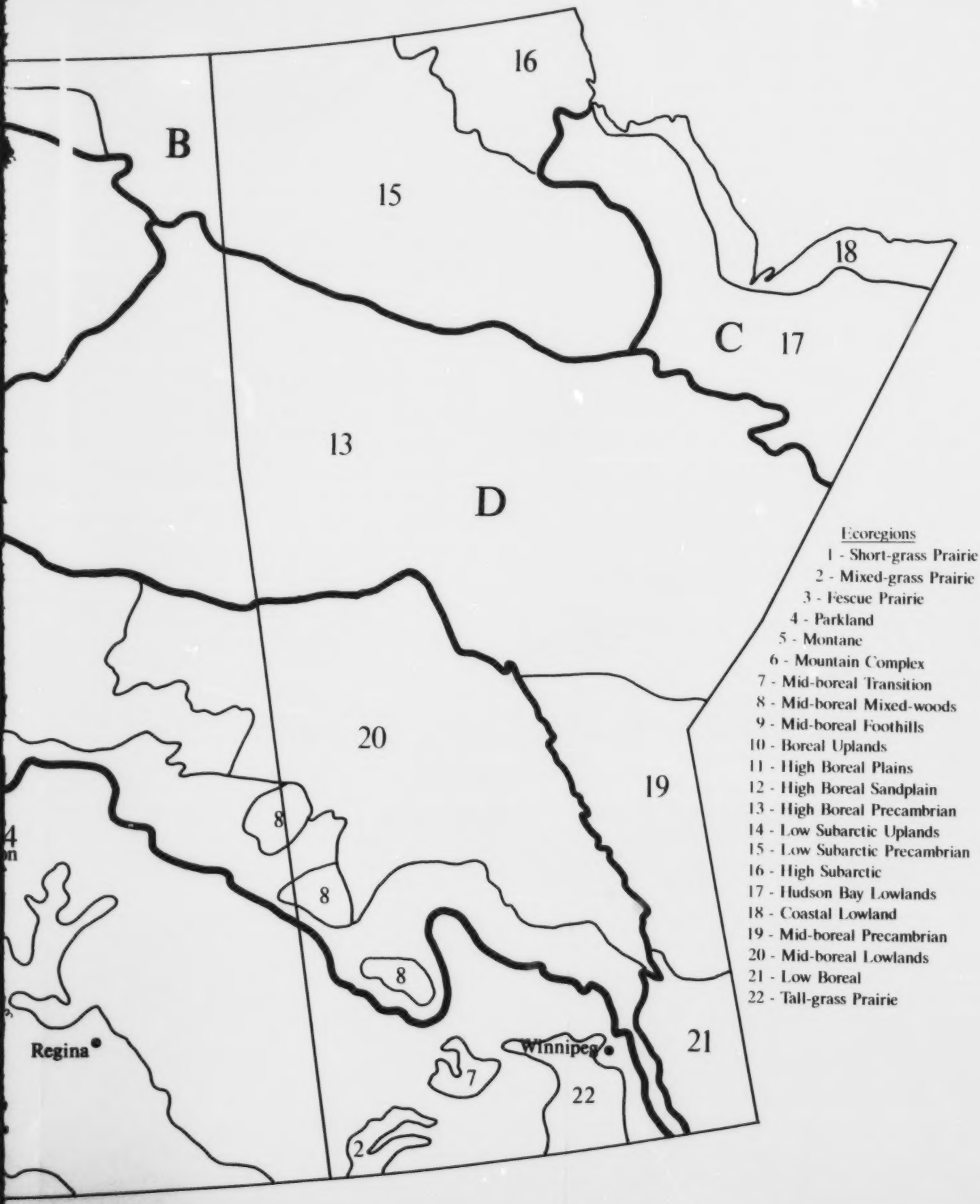


Fig. 1 Ecozones and ecoregions of the Prairie provinces

Habitat subregions characterize similarities in landform, vegetation and wetland components. This degree of ecological land classification, recommended for mapping and regional or local management planning for migratory bird conservation (Adams 1988), is prevalent in this report.

2.3 Migratory Bird Site Priorities

Species Grouping

Species groups - with similar broad habitat requirements, foraging behaviour, or nesting behaviour - conveniently consolidate species distribution and abundance. Advantages of grouping species include the availability of non-species-specific population surveys (e.g., numbers of "ducks"), and the similarity in seasonal importance of habitats to various species within each species group (such as colonial nesters or staging birds). In this discussion and mapping, many of the approximately 400 bird species of the Prairie provinces are in six major species groups: ***Ducks; Geese; Colonial birds; Rare, Threatened and Endangered species; Shorebirds; and Non-game birds*** (primarily passerines). However, differences in species biology among the Non-game birds and Rare, Threatened and Endangered species groups result in a focus on a less site-specific approach to prioritizing their habitats.

Site Attributes

Site use by an estimated one percent or more of a population, or species group, identifies nationally or internationally significant sites (Adams 1988, Carp 1977, Fuller 1980, Lemieux 1982, Lloyd 1984, McCormick *et al.* 1984). Species diversity - measured by a richness or variation index - is a more complex measurement that is frequently recommended for use in ranking site significance, but no clear guidelines exist on what constitutes a "significant" unit area. The gradient of species diversity is often subjective when comparing relative importance, therefore it receives minimal consideration in this report.

Categories of Importance

Precise measurement of bird distribution and abundance in the Prairie provinces is impractical because: survey coverage is often incomplete, survey timing and approaches for species differ, population trends of various species fluctuate in historical surveys, and there is a shortage of knowledge of "turnover" rates. Sites and areas are therefore ranked on the basis of a "database-generated-gradient." Quantitative counts at various sites, such as at nesting colonies or of staging flocks, are ranked from greatest to least numbers of birds in three priority classifications: **nationally important** (often abbreviated as "N" or "***"), **regionally important** (R=**), and **locally important** (L=*).

Notwithstanding other criteria, a few sites, identified as significant by a provincial or federal wildlife agency or a conservation group, but for which no quantitative estimates or counts are available, are classified as **locally important.**

Habitats of Non-game birds are excluded from the rating process, largely because the species' occur over widespread areas comprising many habitat subregions and their range peripheries are not definitive.

Ratings of areas and sites identified and discussed are based solely on the available information at hand.

2.4 Ranking of Habitat Subregions

Weighted values are arbitrarily assigned for the overall relative importance of habitat subregions, **based upon utilization by each species group:**

National importance of an area or site	=	10 points
Regional importance of an area or site	=	5 points
Local importance of an area or site	=	1 point

Subsequently, *cumulative point totals* for all migratory bird species groups *by habitat subregion* are as follows:

(N=***)	Subregion - "most important"	=	80+ points
(R= **)	Subregion - "very important"	=	40 to 79 points
(L= *)	Subregion - "important"	=	10 to 39 points

2.5 Illustrative Mapping

To highlight relative importance, **national** and **regional** breeding, moulting and staging *areas* and *sites* are identified in tables and on maps for each species group, and collectively. However the **local** *sites*, of lesser importance for migratory birds, are usually identified only in tables.

On a habitat subregion basis, a **nationally important subregion** (***dark blue*** in color) indicates either: 1) the area in its entirety is of national importance, or 2) the area contains at least one national site (★) for a species or species group. (It may also include sites of lesser importance.) A **regionally important subregion** (***medium blue*** in color) likewise indicates the area to be of regional importance in its entirety or containing at least one regional site (▲). (It may also include sites of local importance.) A **locally important subregion** (***light blue*** in color) reflects that rating; nevertheless, most maps do not identify the numbers and specific locations of local sites (●).

For cross-referencing purposes, habitat subregion numbers are arranged by increasing values in all tables (one exception is in Table 5, on pages 11 to 29, where segments of river valleys and large lakes are listed at the end of each ecoregion sequence).

3.0 IMPORTANT (RANKED) MIGRATORY BIRD HABITATS OF THE PRAIRIE PROVINCES

Of the 542 habitat subregions in the Prairie provinces, 60 percent - 326 - have at least one locally important site for migratory birds. Furthermore, several ecoregions have most if not all of their habitat subregions designated as important in their entirety.

Five of 22 ecoregions have no important sites currently identified (Mountain Complex, Boreal Uplands, High Boreal Sandplain, High Subarctic and Hudson Bay Lowlands). This suggests further field work is required in these ecoregions to clarify their status.

In this report, with **several hundred important sites or areas** for migratory bird species, "**ranking**" is essential to highlight, on a collective basis, a selective number of habitat subregions important to migratory birds.

Province-wide, the important subregions (as in the cumulative point system of page 4) have at least 10 accredited points, based upon: 10 points = "national" species group designation; 5 points = "regional" species group designation; and 1 point = "local" species group designation. The **best habitat subregions** are those with 80 or more points = **National** subregion; those with 40 to 79 points = **Regional** subregion; and those with 10 to 39 points = **Local** subregion. Within these criteria, 168 habitat subregions are important (**Figure 2** and **Table 1**).

By province, with all or part of a subregion within the provincial border, there are 83 important subregions in Alberta; 31 in Manitoba; and 72 in Saskatchewan (Table 1).

Table 1. Numbers of habitat subregions, by province, of National, Regional and Local importance for migratory birds.

Province	Number of habitat subregions+			
	National ***	Regional **	Local *	Total
Alberta	2	25	56	83
Manitoba	4	9	18	31
Saskatchewan	5	17	50	72
Total	11(9)	51(46)	124(113)	186(168)

+ Cumulative totals exceed the actual subregions (in brackets), because those bisected by a provincial border - (e.g., 2.34 Sibbald Plain A-S; 20.05 Upper Saskatchewan Delta S-M) - are recorded for *each* province.

Tables 2, 3 and 4 list the more important habitat subregions by province. **Table 5** is a detailed listing of *all* habitat subregions, with the important migratory bird species groups identified for the entire lands Prairie-wide.

Table 2. *Alberta* habitat subregions important for migratory birds.

Unit No.	Prov	Area (km^2)	Rating*	Habitat subregion	Cumulative values: Importance N	R	L	Points assigned
1.01	Alta	1649	*	Milk River Plain	1	–	2	12
1.02	S-A	3720	*	Sage Creek Plain	1	2	2	17
1.03	Alta	687	*	Pakowki Plain	–	4	10	30
2.02	Alta	5992	**	Chin Plain	1	5	15	50
2.03	Alta	3305	**	Fincastle Plain	–	5	17	42
2.04	Alta	2209	*	Verdigris Plain	–	2	12	22
2.07	Alta	2539	*	Keho Lake Plain	1	2	5	25
2.10	Alta	2889	*	Enchant Plain	–	2	10	20
2.12	S-A	1514	*	Medicine Hat Plain	–	3	2	17
2.13	S-A	7961	*	Bigstick Lake Plain	1	2	11	31
2.18	Alta	2521	*	Kininvie Plain	–	3	13	28
2.20	Alta	1090	**	Lake Newell Plain	2	3	17	52
2.204	Alta	542	*	Bow R./Bassano to mouth	1	–	1	11
2.21	Alta	409	*	Lomond Upland	1	–	3	13
2.23	Alta	850	*	Blackfoot Plain	1	–	4	14
2.26	Alta	1374	*	Crowfoot Plain	1	2	18	38
2.30	Alta	1053	*	Crawling Valley Plain	–	–	11	11
2.32	Alta	6336	**	Richdale-Cessford Plain	2	3	8	43
2.33	A-S	7702	**	Oyen Upland	1	5	10	45
2.34	S-A	3331	***	Sibbald Plain	–	12	30	90
2.35	S-A	1706	*	Neutral Upland	–	3	4	19
2.36	Alta	610	*	Grassy Island Plain	1	1	1	16
2.37	Alta	891	*	Monitor Hills	–	2	1	11
2.39	Alta	2720	**	Sounding Creek Plain	3	4	4	54
2.40	Alta	591	*	Rumsey Upland	1	–	2	12
2.41	Alta	1693	**	Chain Lakes Plain	1	5	5	40
2.42	Alta	624	*	Hand Hills Upland	–	3	2	17
3.03	Alta	1651	*	St. Mary Plain	1	1	5	20
3.06	Alta	2390	*	Frank Lake Plain	1	1	9	24
3.07	Alta	1402	*	Serviceberry Creek Plain	–	1	12	17
4.02	Alta	718	**	Strathmore Plain	2	2	12	42
4.06	Alta	1350	*	Delburne Upland	–	2	3	13
4.07	Alta	3964	**	Castor Plain	3	4	9	59
4.08	Alta	2512	*	Battle River Upland	1	2	–	20
4.10	Alta	1710	*	Ribstone Plain	1	3	3	28
4.11	A-S	1843	*	Dilberry Plain	1	2	2	22
4.12	A-S	2734	**	Provost Upland	1	7	12	57
4.13	A-S	2213	**	Edgerton Plain	3	7	9	74
4.14	Alta	2620	*	Vermilion Upland	–	2	–	10
4.16	Alta	4068	*	Innisfree Plain	1	–	5	15
4.17	Alta	1277	*	Birch Lake Plain	1	–	1	11
4.18	Alta	5175	*	Killam Plain	2	–	1	21
4.19	Alta	1698	*	Mundare Plain	–	2	1	11
4.20	Alta	2853	**	Beaverhill Lake Plain	4	5	10	75
7.03	Alta	691	**	Buffalo Lake Plain	3	3	10	55

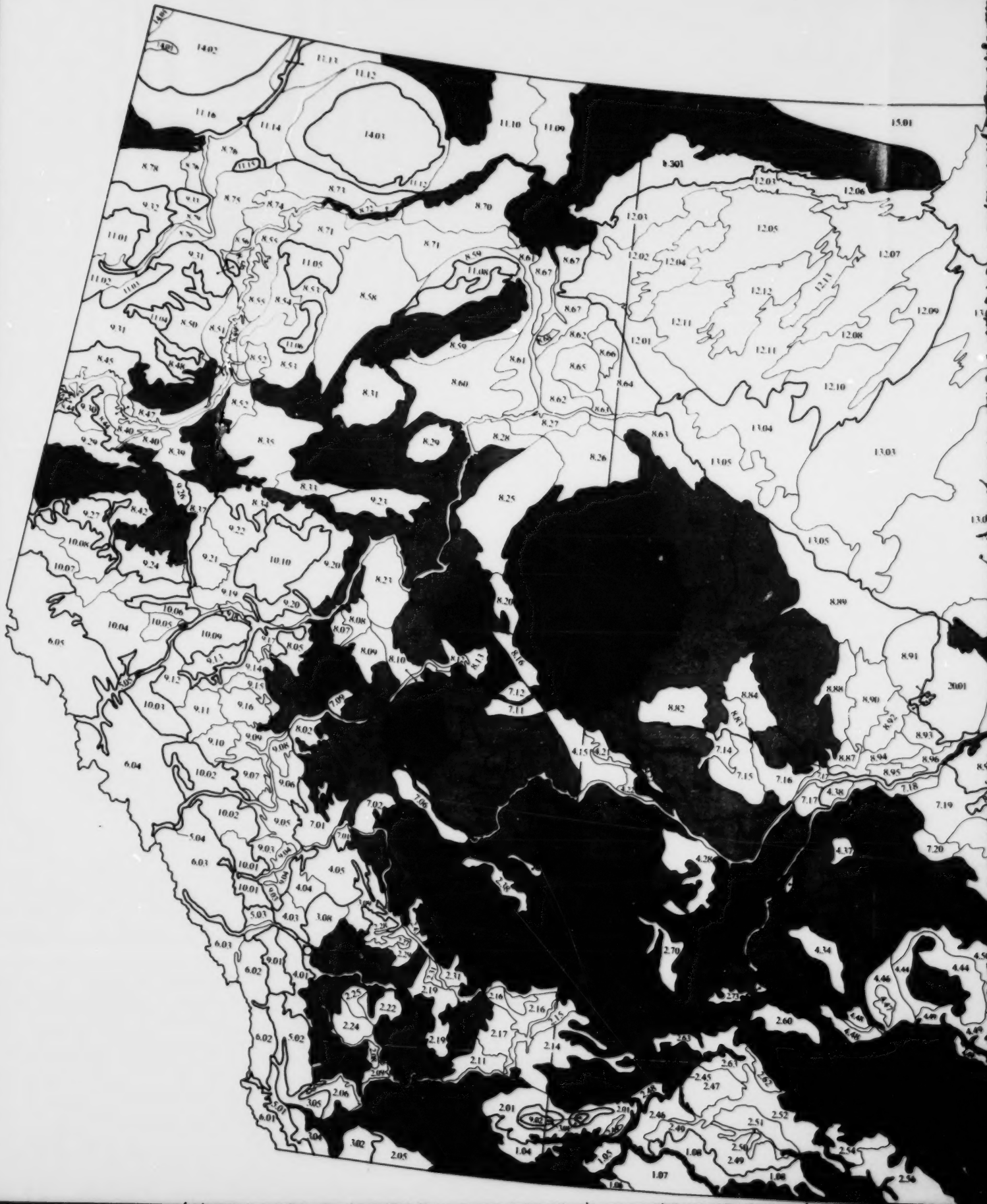


Fig. 2 An overview of *Prairie-wide* habitat subregions ranked for migratory bird importance

Table 2. (continued...2) *Alberta* habitat subregions important for migratory birds.

Unit No.	Prov	Area (km²)	Rating+	Habitat subregion	Cumulative values Importance N	R	L	Points assigned
7.04	Alta	3694	*	Wetaskiwin Plain	1	2	3	23
7.05	Alta	912	*	Bashaw Upland	1	1	2	17
7.07	Alta	2277	**	Cooking Lake Upland	1	11	9	74
7.08	Alta	4627	*	Lake Edmonton Plain	1	2	3	23
7.10	Alta	1331	*	Whitford Plain	2	1	8	33
7.13	S-A	4940	*	Thickwood Hills	–	1	6	11
7.202	Alta	455	*	Battle R./Coal Lk. to Castor Cr.	–	3	2	17
7.203	A-S	1556	*	N. Sask. R./Andrew to N. Battleford	–	2	–	10
8.01	Alta	2654	*	Pigeon Lake Upland	1	1	2	17
8.03	Alta	2660	*	Chip Lake Plain	–	2	5	15
8.04	Alta	3831	**	Lac Ste Anne Plain	1	4	13	43
8.06	Alta	2980	*	Fort Assiniboine Plain	1	–	1	11
8.11	Alta	3059	*	Thorhild Plain	1	–	2	12
8.14	Alta	2980	**	Whitefish Upland	3	3	7	52
8.15	Alta	762	**	Saddle Lake Plain	2	2	10	40
8.17	S-A	6278	**	Cold Lake Hills	1	7	7	52
8.18	Alta	2963	***	Beaver River Plain	6	10	21	131
8.19	A-S	27523	**	Moostoos Upland	2	5	16	61
8.21	Alta	2188	**	Missawawi Lake Plain	3	2	13	53
8.211	Alta	2398	*	Peace R./Ft Vermilion to Peace-Athabasca Delta	1	–	1	11
8.22	Alta	3605	*	La Biche Plain	1	1	–	15
8.24	Alta	3852	*	Calling Lake Plain	–	1	8	13
8.30	Alta	8624	*	Wabasca Lake Plain	–	3	2	17
8.303	Alta	1133	*	Lesser Slave Lake	–	2	3	13
8.32	Alta	3886	**	Utikuma Plain	3	4	8	58
8.36	Alta	1724	**	Winagami Lake Plain	3	5	18	73
8.38	Alta	2534	*	Falher Plain	1	–	2	12
8.41	Alta	1978	*	Kleskun Plain	–	3	4	19
8.43	Alta	1431	**	Clairmount Plain	4	5	8	73
8.46	Alta	3200	*	Cardinal Lake Plain	1	1	14	29
8.57	Alta	5711	*	Lubicon Plain	–	2	6	16
8.69	Alta	5587	**	Peace-Athabasca Delta	5	1	4	59
8.77	Alta	2355	*	Zama Lake Plain	2	1	1	26
9.25	Alta	3819	*	Sturgeon Lake Plain	1	1	1	16
9.28	Alta	3133	**	Beaverlodge Plain	4	2	11	61
11.07	Alta	6734	*	Birch Mountains Upland	–	1	6	11
11.11	Alta	5775	*	Buffalo River Plain	1	–	–	10
13.01	S-A	20692	*	Tazin River Plain	1	–	–	10

+ based upon cumulative species group ratings of 80+ points=***=National importance; 40 to 79 points=**=Regional importance; 10 to 39 points=* =Local importance.

Table 3. *Manitoba* habitat subregions important for migratory birds.

Unit No.	Prov	Area (km²)	Rating+	Habitat subregion	Cumulative values: Importance N	R	L	Points assigned
2.76	Man	2703	**	Boissevain-Hartney Plain	5	–	3	**53**
4.301	Man	2231	**	Lake Manitoba /most of Lk.	3	2	5	**45**
4.56	S-M	4432	*	Pipestone Plain	1	–	1	11
4.58	S-M	6166	*	Gainsborough Creek Plain	1	1	2	17
4.60	Man	2786	**	Lake Souris Plain	3	3	2	**47**
4.62	Man	7149	*	Newdale Plain	–	2	3	13
4.67	Man	2529	*	Boissevain Plain	–	2	–	10
4.69	Man	666	*	Turtle Mountain	1	–	–	10
4.77	Man	4801	*	Westlake Till Plain	–	1	7	12
4.78	Man	1575	*	Whitemud River Plain	–	2	1	11
4.79	Man	372	**	Delta Marshes	3	4	8	**58**
4.81	Man	2757	***	Shoal Lakes Plain	9	3	10	**115**
4.83	Man	2853	**	Lower Red River Plain	3	1	10	**45**
7.31	Man	2823	*	Crane River Plain	–	1	12	17
7.32	Man	7694	***	Interlake Plain	4	8	31	**111**
7.35	Man	306	*	Red River Delta	2	2	8	38
15.05	Man	8959	*	Big Sand Lake Plain	1	–	–	10
18.01	Man	3858	*	Rupert Creek Lowland	3	–	4	34
18.05	Man	908	*	Cape Churchill Beaches	1	–	5	15
19.05	Man	1530	*	Wanipigou River Plain	1	3	–	25
20.05	S-M	6134	***	Upper Saskatchewan Delta	3	9	27	**102**
20.06	M-S	6022	*	Overflowing River Lowland	1	2	–	20
20.07	Man	3895	*	The Pas Moraine	–	2	–	10
20.09	Man	16133	**	Moose Lake Plain	1	5	5	**40**
20.12	Man	8879	***	Winnipegosis Plain	12	12	15	**195**
20.15	Man	9094	**	Waterhen Lake Plain	2	4	6	**46**
20.19	Man	2623	*	Fisher River Plain	1	2	5	25
20.20	Man	4567	*	Grindstone Point Lowland	1	3	4	29
20.301	Man	15739	**	Lake Winnipeg /north 2/3	2	6	3	**53**
21.04	Man	4020	**	Whiteshell River Plain	–	5	18	**43**
22.01	Man	8819	*	Red River Valley	1	1	–	15

+ based upon cumulative species group ratings of 80+ points=***=National importance; 40 to 79 points=**=Regional importance; 10 to 39 points=* =Local importance.

Table 4. *Saskatchewan* habitat subregions important for migratory birds.

Unit No.	Prov	Area (km^2)	Rating*	Habitat subregion	Cumulative values: Importance N	R	L	Points assigned
1.02	S-A	3720	*	Sage Creek Plain	1	2	2	22
1.09	Sask	3334	*	Poplar River Plain	–	3	2	17
1.201	Sask	1373	*	Frenchman River/Alta. to U.S.A.	–	3	7	22
2.208	Sask	978	*	S. Sask R./Red Deer R. to Lk. Dief.	1	3	5	30
2.210	Sask	1312	**	Qu'Appelle R./Lk. Dief. to Lumsden	1	10	18	**78**
2.212	Sask	568	*	Eagle Cr./Scott-Zealandia	1	1	5	20
2.12	S-A	1514	*	Medicine Hat Plain	–	3	2	17
2.13	S-A	7961	*	Bigstick Lake Plain	1	2	11	31
2.301	Sask	1431	*	Lake Diefenbaker	2	1	7	32
2.302	Sask	387	**	Last Mountain Lake	3	4	24	**74**
2.33	A-S	7702	**	Oyen Upland	1	5	10	**45**
2.34	S-A	3331	***	Sibbald Plain	–	12	30	**90**
2.35	S-A	1706	*	Neutral Upland	–	3	4	19
2.45	Sask	1358	*	Swift Current Creek Valley	–	4	3	23
2.53	Sask	1838	*	Willow Bunch-Big Muddy Valley	–	3	7	22
2.55	Sask	5832	*	Missouri Coteau	–	3	8	23
2.57	Sask	7902	*	Long Creek Plain	–	2	4	14
2.58	Sask	7992	**	Regina Plain	2	5	10	**55**
2.59	Sask	1943	*	Tuxford Plain	1	1	1	16
2.61	Sask	1699	***	Old Wives Lake Basin	5	6	9	**89**
2.64	Sask	1981	*	Antelope Lake Plain	–	2	4	14
2.65	Sask	721	*	Bigstick Lake Sandhills	–	4	3	23
2.66	Sask	1419	*	Great Sandhills	1	–	5	15
2.67	Sask	639	*	Mantario Plain	–	1	6	11
2.68	Sask	5771	**	Kindersley Plain	2	6	16	**66**
2.69	Sask	2427	**	Tramping Lake Plain	–	8	13	**53**
2.71	Sask	6528	**	Eagle Creek Plain	2	6	13	**63**
2.72	Sask	3329	*	Coteau Hills	1	2	9	29
2.74	Sask	1606	*	Brightwater Creek Plain	2	–	2	22
2.75	Sask	4740	***	Upper Qu'Appelle Plain	2	11	12	**87**
4.11	A-S	1843	*	Dilberry Plain	1	2	2	22
4.12	A-S	2734	**	Provost Upland	1	7	12	**57**
4.13	A-S	2213	**	Edgerton Plain	3	7	9	**74**
4.206	Sask	1986	*	Qu'Appelle R./Lumsden to bdry	–	5	13	38
4.23	Sask	5779	*	N. Saskatchewan River Plain	2	3	4	39
4.24	Sask	5134	*	Redberry Lake Upland	1	4	6	36
4.25	Sask	1343	*	Fremont Upland	1	–	1	11
4.26	Sask	3507	**	Cutknife Plain	–	6	12	**42**

Table 4. (continued...2) *Saskatchewan* habitat subregions important for migratory birds.

Unit No.	Prov	Area (km^2)	Rating*	Habitat subregion	Cumulative values: Importance N	R	L	Points assigned
4.27	Sask	1570	*	Cutknife Hills	–	2	7	17
4.29	Sask	1236	*	Whiteshore Lake Plain	–	3	3	18
4.30	Sask	7509	**	S. Saskatchewan R. Plain	3	3	18	**63**
4.31	Sask	1030	*	Dundurn Sandhills	1	1	3	18
4.32	Sask	981	*	Hawarden Hills	1	1	–	15
4.33	Sask	1704	*	Kenaston Upland	1	1	1	16
4.35	Sask	1954	*	Colonsay Plain	–	1	5	10
4.36	Sask	3741	*	Minichinas Hills Upland	–	3	1	16
4.39	Sask	2991	**	Melfort Plain	2	7	3	**58**
4.40	Sask	1905	**	Tiger Hills Upland	–	7	17	**52**
4.41	Sask	8299	***	Ponass Lakes Plain	5	9	27	**122**
4.42	Sask	2929	*	Lanigan Creek Plain	–	2	4	14
4.43	Sask	1755	**	Quill Lakes Basin	3	5	9	**64**
4.45	Sask	2715	*	Touchwood Upland	1	–	–	10
4.51	Sask	3387	*	Whitesand River Plain	–	1	5	10
4.52	Sask	5459	*	Yorkton Plain	–	2	3	13
4.54	Sask	2495	*	Pheasant Hills Upland	1	–	1	11
4.55	Sask	10758	**	Moose Mountain Upland	1	5	9	**44**
4.56	S-M	4432	*	Pipestone Plain	1	–	1	11
4.58	S-M	6166	*	Gainsborough Creek Plain	1	1	2	17
4.59	Sask	5980	*	Souris River Plain	1	–	5	15
7.13	S-A	4940	*	Thickwood Hills	–	1	6	11
7.203	A-S	1556	*	N. Sask. R./Andrew to N. Battleford	–	2	–	10
8.17	S-A	6278	**	Cold Lake Hills	1	7	7	**52**
8.19	A-S	27523	**	Moostoos Upland	2	5	16	**61**
8.302	Sask	483	*	Tobin Lake	1	2	1	21
8.80	Sask	11372	*	Ile a la Crosse Lowland	1	3	6	31
8.81	Sask	17620	*	Beaver River Plain	1	3	11	36
8.85	Sask	10351	*	Waskesiu Hills Upland	1	2	2	22
8.86	Sask	2212	*	Debden Plain	–	2	2	12
13.01	S-A	20692	*	Tazin River Plain	1	–	–	10
20.03	Sask	4131	*	Suggi Lake Lowland	–	2	–	10
20.05	S-M	6134	***	Upper Saskatchewan Delta	3	9	27	**102**
20.06	M-S	6022	*	Overflowing River Lowland	1	2	–	20

* based upon cumulative species group ratings of 80+ points=***=National importance; 40 to 79 points=**=Regional importance; 10 to 39 points=* =Local importance.

Table 5. Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
							SHORT-GRASS PRAIRIE ECOREGION										
1.01	ALTA	1649	*	1	-	2	Milk River Plain									1N,2L	
1.02	S-A	3720	*	1	2	2	Sage Creek Plain			1L						1N,2R,1L	
1.03	ALTA	687	*	-	4	10	Pakowki Plain		1R	1R				1R,7L	1L	2L	1R
1.04	A-S	1403		-	-	2	Lodge Benchland									2L	
1.05	SASK	887		-	1	1	Outlaw Coulee Upland									1R,1L	
1.06	SASK	202		-	-	-	Boundary Plateau										
1.07	SASK	3056		-	-	3	Frenchman River Plateau		1L							2L	
1.08	SASK	3809		-	-	2	Wood Mountain Plateau									2L	
1.09	SASK	3334	*	-	3	2	Poplar River Plain							1R	1R,2L	1R	1L
1.201	SASK	1373	*	-	3	7	Frenchman River/Alta. to U.S.A.			1L	2L		1R	1R	2L	1R,1L	1L
		20120	-	-	-	-	(proportion of overall area = 1.03%)										
							MIXED-GRASS PRAIRIE ECOREGION										
2.01	S-A	4668		-	1	2	Cypress Hills Benchland	1L			1R					1L	
2.02	ALTA	5992	**	1	5	15	Chin Plain		2L	1R,6L	1R,2L		1R,2L	1N,2R,2L		1L	
2.03	ALTA	3305	**	-	5	17	Fincastle Plain		2L	1R,5L	3R,1L		1L	1R,5L	2L	1L	
2.04	ALTA	2209	*	-	2	12	Verdigris Plain	1L	2L	4L	1R		1R,3L		1L	1L	
2.05	ALTA	1600		-	-	4	Milk River Upland					1L			1L	2L	
2.06	ALTA	1256		-	-	1	Three River Plain									1L	
2.07	ALTA	2539	*	1	2	5	Keho Lake Plain			2L	1R			1N,1R,2L		1L	
2.08	ALTA	339		-	-	1	Travers-Coaldale Plain									1L	
2.09	ALTA	333		-	-	1	Picture Butte Plain									1L	
2.10	ALTA	2889	*	-	2	10	Enchant Plain	1L	4L	2R,3L					2L		
2.11	ALTA	1347		-	-	1	Suffield South Plain									1L	
2.12	S-A	1514	*	-	3	2	Medicine Hat Plain							2R		2L	1R
2.13	S-A	7961	*	1	2	11	Bigstick Lake Plain		1L	1N,1R,3L	1R,1L	1L	2L			3L	
2.14	S-A	4057		-	1	2	Schuler Upland									1L	1R,1L
2.15	A-S	749		-	-	-	Middle Sand Hills South										
2.16	ALTA	1508		-	-	2	Middle Sand Hills									2L	
2.17	ALTA	1736		-	-	1	Rainy Hills									1L	
2.18	ALTA	2521	*	-	3	13	Kininvie Plain			1R,6L	2R,2L		1L		1L	3L	
2.19	ALTA	2158		-	-	4	Maizhiwin Plain			1L	1L					2L	

Table 5. (continued...2) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
2.20	ALTA	1090	**	2	3	17	Lake Newell Plain		1R	7L	1L		1L	1N,1R,5L	1N,1R	2L	1L
2.21	ALTA	409	*	1	-	3	Lomond Upland				1R		1L		1L	1L	
2.22	ALTA	979		-	-	2	Majorville Upland	1L								1L	
2.23	ALTA	850	*	1	-	4	Blackfoot Plain			1L	1L		1L		1N		1L
2.24	ALTA	1318		-	-	1	Little Bow Plain									1L	
2.25	ALTA	627		-	-	1	Arrowwood Creek Plain									1L	
2.26	ALTA	1374	*	1	2	18	Crowfoot Plain			1R,1L			3L	7L	1N,4L	1L	1R,2L
2.27	ALTA	450		-	-	-	Wintering Hills										
2.28	ALTA	757		-	-	1	Rosebud-Drumheller Plain									1L	
2.29	ALTA	747		-	1	4	Deadhorse Lake Upland	1R	1L	1L							2L
2.30	ALTA	1053	*	-	-	11	Crawling Valley Plain				1L			7L	3L		
2.31	ALTA	917		-	1	1	Lower Berry Creek Plain									1R,1L	
2.32	ALTA	6336	**	2	3	8	Richdale-Cessford Plain		1L		1L		1N,3R,4L			1N,1L	1L
2.33	A-S	7702	**	1	5	10	Oyen Upland			1N,2R,2L			3R,4L			2L	2L
2.34	S-A	3331	***	-	12	30	Sibbald Plain		3L	5R,12L			7R,11L			3L	1L
2.35	S-A	1706	*	-	3	4	Neutral Upland	1R	1L	2R			1L			2L	
2.36	ALTA	610	*	1	1	1	Grassy Island Plain		1L				1N				1R
2.37	ALTA	891	*	-	2	1	Monitor Hills	1R								1L	1R
2.38	ALTA	1120		-	1	1	Coronation Plain	1L					1R				
2.39	ALTA	2720	**	3	4	4	Sounding Creek Plain						2N,4R,3L			1N,1L	
2.40	ALTA	591	*	1	-	2	Rumsey Upland	1N					1L			1L	
2.41	ALTA	1693	**	1	5	5	Chain Lakes Plain	1L					1N,2R	2R,3L		1R,1L	
2.42	ALTA	624	*	-	3	2	Hand Hills Upland						2R			1R,2L	
2.43	ALTA	501		-	-	2	East Coulee Plain									2L	
2.44	SASK	232		-	-	-	Conglomerate Creek Valley										
2.45	SASK	1358	*	-	4	3	Swift Current Creek Valley		1R	1R			1R,1L			2L	1R
2.46	SASK	1962		-	-	1	Shaunavon Plain									1L	
2.47	SASK	2429		-	1	1	Rush Lake Creek Plain							1R		1L	
2.48	SASK	466		-	-	1	Bridge Creek Upland									1L	
2.49	SASK	4023		-	-	1	Wood River Plain									1L	
2.50	SASK	736		-	1	1	Pinto-Lynthorpe Creek Valley									1R,1L	
2.51	SASK	1883		-	-	5	Lower Wood River Plain		2L		1L					2L	
2.52	SASK	3824		-	-	2	Notukeu Creek Plain		1L							1L	

Table 5. (continued...3) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
2.53	SASK	1838	*	-	3	7	Willow Bunch-Big Muddy Valley		1R,2I.	2I.			1I.		1R	1R,2I.	
2.54	SASK	1431		-	-	2	Amulet Hills	1I.								1I.	
2.55	SASK	5832	*	-	3	8	Missouri Coteau	1R	1R	1R					4I.	4I.	
2.56	SASK	3950		-	1	1	Missouri Coteau South	1R								1I.	
2.57	SASK	7902	*	-	2	4	Long Creek Plain	1I.	1I.				1I.			2R,1I.	
2.58	SASK	7992	**	2	5	10	Regina Plain			3I.	1R	1I.	2R,5I.	2R	1N,2I.	1N	1I.
2.59	SASK	1943	*	1	1	1	Tuxford Plain						1R			1N,1I.	
2.60	SASK	1575		-	1	1	Eyebrow Hills Upland									1R,1I.	
2.61	SASK	1699	***	5	6	9	Old Wives Lake Basin		1N,1I.	1R,1I.			1N,1R	1N,3R,3I.	1R	1N,3I.	1N,1I.
2.62	SASK	654		-	-	3	Shamrock Upland	1I.								2I.	
2.63	SASK	2630		-	-	3	Prairie View Hills									2I.	1I.
2.64	SASK	1981	*	-	2	4	Antelope Lake Plain		1I.	1I.			1I.			2R,1I.	
2.65	SASK	721	*	-	4	3	Bigstick Lake Sandhills			1R	1I.		1I.	2R		1R,1I.	
2.66	SASK	1419	*	1	-	5	Great Sandhills						1I.		1N	3I.	1I.
2.67	SASK	639	*	-	1	6	Mantario Plain			1R,1I.			2I.			3I.	
2.68	SASK	5771	**	2	6	16	Kindersley Plain		4I.	3R,2I.			1N,2R,6I.		1R,2I.	1N,2I.	
2.69	SASK	2427	**	-	8	13	Tramping Lake Plain		2I.	4R,1I.			3R,8I.			2I.	1R
2.70	SASK	1570		-	-	2	Bad Hills Upland									2I.	
2.71	SASK	6528	**	2	6	13	Eagle Creek Plain		1R,5I.	3R,2I.	1I.		1N,4I.		1R	1N,1R,1I.	
2.72	SASK	3329	*	1	2	9	Coteau Hills	1I.	2I.	1R,2I.	1I.		1N			1R,2I.	1I.
2.73	SASK	643		-	1	1	Lucky Lake Plain									1R,1I.	
2.74	SASK	1606	*	2	-	2	Brightwater Creek Plain		1I.							2N	
2.75	SASK	4740	***	2	11	12	Upper Qu'Appelle Plain		3R,4I.	5R,1I.	2R,1I.		2N,2I.			4I.	1R
2.76	MAN	2703	**	5	-	3	Boissevain-Hartney Plain		1I.	1N,1I.			1N			2N,1I.	1N
2.201	ALTA	860		-	-	3	Oldman River				1I.				1R	1I.	
2.202	ALTA	392		-	1	2	Little Bow R./Mosquito Cr. to Oldman R.		1I.			1R			1I.		
2.203	ALTA	775		-	1	2	Bow R./Calgary to Bassano			1I.	1R					1I.	
2.204	ALTA	542	*	1	-	1	Bow R./Bassano to mouth			1I.						1N	
2.205	ALTA	998		-	1	3	S. Sask R./Bow R. to Red Deer R.				1I.		1R,2I.				
2.206	ALTA	42		-	-	1	Rosebud R./around Rosebud area									1I.	
2.207	ALTA	1188		-	-	3	Red Deer R./Drumheller to S. Sask R.				1I.		1I.			1I.	
2.208	SASK	978	*	1	3	5	S. Sask R./Red Deer R. to Lk. Dief.			1R	1I.		1N,2R,2I.			2I.	
2.209	SASK	256		-	-	1	S. Sask R./Outlook portion					1I.					

Table 5. (continued...4) Migratory bird habitat subregion priorities for the entire Prairie provinces.

(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
2.210	SASK	1312	**	1	10	18	Qu'Appelle R./Lk. Dief. to Lumsden		1R,4L	4R,2L	1R		3R,2L		8L	1R	1N,2L
2.211	SASK	437		-	-	4	Souris R./upper to Bienfait	1L								3L	
2.212	SASK	568	*	1	1	5	Eagle Cr./Scott-Zealandia		1L	1N,1R			1N,1L			3L	
2.301	SASK	1431	*	2	1	7	Lake Diefenbaker			1R,1L	1L		2L		1L	1N,2L	1N
2.302	SASK	387	**	3	4	24	Last Mountain Lake		2L	1N,1R	3L		1R,1L	2R,11L	4L	1N,3L	1N
		185679	-	-	-	-	(proportion of overall area = 9.54%)										
							FESCUE PRAIRIE ECOREGION										
3.01	S-A	1042		-	-	1	Elkwater Lake Upland									1L	
3.02	ALTA	1200		-	1	2	Del Bonita Plain				1R	1L				1L	
3.03	ALTA	1651	*	1	1	5	St. Mary Plain						1L	1N,1R,1L	2L	1L	
3.04	ALTA	1033		-	-	4	Waterton Upland	1L							2L	1L	
3.05	ALTA	1508		-	-	1	Pincher Plain									1L	
3.06	ALTA	2390	*	1	1	9	Frank Lake Plain			1R			1L	6L	1N	2L	
3.07	ALTA	1402	*	-	1	12	Serviceberry Creek Plain		2L					1R	7L	1L	2L
3.08	ALTA	1769		-	-	3	Rosebud Creek Plain									1L	2L
3.09	ALTA	1620		-	-	-	Ghostpine Plain										
3.201	ALTA	73		-	-	-	Little Bow R./upper portion										
		13688	-	-	-	-	(proportion of overall area = 0.7%)										
							PARKLAND ECOREGION										
4.01	ALTA	2009		-	-	1	Okotoks Upland						1L				
4.02	ALTA	718	**	2	2	12	Strathmore Plain		2L	2L	1R			1N,1R,2L	1N,4L	1L	1L
4.03	ALTA	1091		-	1	-	Nosehill Benchland							1R			
4.04	ALTA	1308		-	-	2	Dogpound Benchland			1L					1L		
4.05	ALTA	3234		-	-	1	Kneehills Upland	1L									
4.06	ALTA	1350	*	-	2	3	Delburne Upland	1R						1R,1L	2L		
4.07	ALTA	3964	**	3	4	9	Castor Plain	1R	1L	2N	2L		1N,2R,4L		1R,1L		1L
4.08	ALTA	2512	*	1	2	-	Battle River Upland	1N		1R			1R				
4.09	ALTA	255		-	-	1	Neutral Hills	1L									
4.10	ALTA	1710	*	1	3	3	Ribstone Plain	1L					2L			1R	1N,2R
4.11	A-S	1843	*	1	2	2	Dilberry Plain	1L	1R	1R						1L	1N
4.12	A-S	2734	**	1	7	12	Provost Upland	1R		2R,3L			1N,2R,8L			1L	2R

Table 5. (continued...5) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
4.13	A-S	2213	**	3	7	9	Edgerton Plain	1L	1R,3L	2R	2L		2R,2L			1N,1L	2N,2R,1L
4.14	ALTA	2620	*	-	2	-	Vermilion Upland	1R		1R							
4.15	S-A	2887		-	-	1	Hazeldine Plain				1L						
4.16	ALTA	4068	*	1	-	5	Innisfree Plain	1L		1N,3L			1L				
4.17	ALTA	1277	*	1	-	1	Birch Lake Plain	1N									1L
4.18	ALTA	5175	*	2	-	1	Killam Plain	1N	1L	1N							
4.19	ALTA	1698	*	-	2	1	Mundare Plain	1R		1R			1L				
4.20	ALTA	2853	**	4	5	10	Beaverhill Lake Plain	1N	1N,1R	1N,1R,2L	1L		1R	1R,5L	2L		1N,1R
4.21	SASK	760		-	1	-	Hillmond Upland	1R									
4.22	SASK	756		-	-	-	Paynton Sandhills										
4.23	SASK	5779	*	2	3	4	North Saskatchewan River Plain			1N,2R		1L	1R,2L			1L	1N
4.24	SASK	5134	*	1	4	6	Redberry Lake Upland	1L		1R,2L			1R,1L	1N,1R,2L		1R	
4.25	SASK	1343	*	1	-	1	Fremont Upland	1L					1N				
4.26	SASK	3507	**	-	6	12	Cutknife Plain		3L	4R,3L			4L			1L	2R,1L
4.27	SASK	1570	*	-	2	7	Cutknife Hills	1L	1L	1R			3L			1L	1R,1L
4.28	SASK	3264		-	1	4	Eagle Hills	1R	2L	1L			1L				
4.29	SASK	1236	*	-	3	3	Whiteshore Lake Plain	1L		1R			2R,1L				1L
4.30	SASK	7509	**	3	3	18	South Saskatchewan River Plain		1R,3L	1R,1L	1R		3L	1N,2L	1N,1L	3L	1N,5L
4.31	SASK	1030	*	1	1	3	Dundurn Sandhills		1L	1L			1R			1N,1L	
4.32	SASK	981	*	1	1	-	Hawarden Hills									1N,1R	
4.33	SASK	1704	*	1	1	1	Kenaston Upland	1L								1N,1R	
4.34	SASK	1843		-	1	4	Allan Hills	1R								4L	
4.35	SASK	1954	*	-	1	5	Colonsay Plain	1R	1L				1L			3L	
4.36	SASK	3741	*	-	3	1	Minichinas Hills Upland	1R		1L	1R						1R
4.37	SASK	534		-	-	-	Hoodoo Lakes Plain									1L	
4.38	SASK	621		-	1	-	Red Deer Hills	1R									
4.39	SASK	2991	**	2	7	3	Melfort Plain	1R	1R,1L	1N,3R	1R,1L	1L	1N,1R				
4.40	SASK	1905	**	-	7	17	Tiger Hills Upland	1L	1R,1L	2R,4L	5L		1R,3L	1R,1L	2R,2L		
4.41	SASK	8299	***	5	9	27	Ponass Lakes Plain	1N	1R,3L	2N,3R,4L	1R,10L	3L	1N,5L	3R,1L	1R,1L		1N
4.42	SASK	2929	*	-	2	4	Lanigan Creek Plain	1R	2L	1L			1R			1L	
4.43	SASK	1755	**	3	5	9	Quill Lakes Basin		2L	1N,2R	2R,1L	2L	3L		1R	1N,1L	1N
4.44	SASK	3937		-	1	-	Touchwood-Beaver Hills	1R									
4.45	SASK	2715	*	1	-	-	Touchwood Upland	1N									

Table 5. (continued...6) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
4.46	SASK	2096		-	1	1	Last Mountain Plain	1R								1L	
4.47	SASK	578		-	1	-	Last Mountain Upland	1R									
4.48	SASK	1381		-	1	1	Buffalo Pound Upland	1R								1L	
4.49	SASK	2688		-	-	3	Balcarres Plain	1L					1L			1L	
4.50	SASK	4249		-	1	-	Touchwood Slope	1R									
4.51	SASK	3387	*	-	1	5	Whitesand River Plain			1L	1R,3L				1L		
4.52	SASK	5459	*	-	2	3	Yorkton Plain	1R		1L	1L		1R		1L		
4.53	M-S	1187		-	-	-	St. Lazare Plain										
4.54	SASK	2495	*	1	-	1	Pheasant Hills Upland	1N								1L	
4.55	SASK	10758	**	1	5	9	Moose Mountain Upland	1R		3L	1R,2L		2R,2L	1R	1N,2L		
4.56	S-M	4432	*	1	-	1	Pipestone Plain	1N								1L	
4.57	SASK	1166		-	1	1	Moose Mountain	1L						1R			
4.58	S-M	6166	*	1	1	2	Gainsborough Creek Plain	1N						1R		2L	
4.59	SASK	5980	*	1	-	5	Souris River Plain	1L					1N,1L			3L	
4.60	MAN	2786	**	3	3	2	Lake Souris Plain		1L	1N,1L			1N		1R	1N,2R	
4.61	MAN	733		-	-	1	Arrow River Plain									1L	
4.62	MAN	7149	*	-	2	3	Newdale Plain	1R		1R,1L			1L		1L		
4.63	MAN	1575		-	-	4	Rackham Hills	1L		1L			1L		1L		
4.64	MAN	1089		-	-	1	Brandon Plain									1L	
4.65	MAN	1939		-	-	5	Brandon Lakes Plain			1L			1L			3L	
4.66	MAN	1719		-	1	1	Tiger Hills							1R		1L	
4.67	MAN	2529	*	-	2	-	Boissevain Plain	1R								1R	
4.68	MAN	481		-	-	-	Turtle Mountain Slope										
4.69	MAN	666	*	1	-	-	Turtle Mountain							1N			
4.70	MAN	1561		-	-	-	Manitou Plain										
4.71	MAN	667		-	-	-	Pembina Escarpment										
4.72	MAN	1381		-	-	-	Pembina Hills										
4.73	MAN	788		-	-	-	Neepawa Plain										
4.74	MAN	3157		-	-	-	Lower Assiniboine Delta										
4.75	MAN	620		-	-	-	Kelwood Ridge										
4.76	MAN	570		-	-	-	Turtle River Plain										
4.77	MAN	4801	*	-	1	7	Westlake Till Plain			3L	1L		3L	1R			
4.78	MAN	1575	*	-	2	1	Whitemud River Plain		1R	1R			1L				

Table 5. (continued...7) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
4.79	MAN	372	**	3	4	8	Delta Marshes		2L	1R,1L	1L	1L	2L	2N,3R		1N,1L	
4.80	MAN	727		-	-	-	Lily Bay Terrace										
4.81	MAN	2757	***	9	3	10	Shoal Lakes Plain		1L	1N,1L	1R,1L	2L	2N	4N,2R,5L		1N	1N
4.82	MAN	1132		-	-	-	Woodlands Plain										
4.83	MAN	2853	**	3	1	10	Lower Red River Plain		1L	1N,1L			1N,1L	1R,5L	2L		1N
4.84	MAN	1568		-	-	-	Roseau River Plain										
4.201	SASK	1260		-	1	-	Battle R./Castor Cr. to Battleford							1R			
4.202	SASK	794		-	-	-	N. Sask R./Battleford to Carlton										
4.203	SASK	816		-	-	1	S. Sask R./Donovan to Sask R.									1L	
4.204	SASK	243		-	-	-	Whitesand River										
4.205	MAN	1636		-	-	-	Assinib. R./bdry to past Brandon										
4.206	SASK	1986	*	-	5	13	Qu'Appelle R./Lumsden to bdry		2L	1R	1R		2L		2R,8L	1L	1R
4.207	MAN	191		-	-	-	Assiniboine R./d.s. Spruce Woods Park										
4.208	S-M	781		-	-	-	Pipestone Ck./headwaters to Oak Lk.										
4.209	SASK	249		-	-	3	Souris R./Bienfait to U.S.A.								1L	2L	
4.210	MAN	143		-	-	-	Red River/Winnipeg portions										
4.211	MAN	848		-	-	5	Pembina R./Ninette to bdry			3L			2L				
4.301	MAN	2231	**	3	2	5	Lake Manitoba/most of lake							3N,2R,3L	2L		
		221711	-	-	-	-	(proportion of overall area = 11.39%)										
							MONTANE ECOREGION										
5.01	ALTA	1620		-	-	1	Belly River Upland									1L	
5.02	ALTA	3361		-	1	-	Porcupine Hills							1R			
5.03	ALTA	771		-	-	-	Ghost-Waiparous Upland										
5.04	ALTA	247		-	-	-	Kootenay Plains										
5.05	ALTA	1521		-	-	-	Athabasca River Valley										
5.201	ALTA	848		-	-	-	Bow R./Banff to Calgary										
		8368	-	-	-	-	(proportion of overall area = 0.43%)										
							MOUNTAIN COMPLEX ECOREGION										
6.01	ALTA	1444		-	-	-	Castle River Ranges										
6.02	ALTA	4073		-	-	-	Highwood-Livingstone Ranges										
6.03	ALTA	9690		-	-	-	Vermilion-Sawback Ranges										

Table 5. (continued...8) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N — R — L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
6.04	ALTA	10963		- - -	Icefield-Maligne Ranges										
6.05	ALTA	11399		- - -	Smoky River Alpine and Subalpine										
		37569	-	- - -	(proportion of overall area = 1.93%)										
					MID-BOREAL TRANSITION ECOREGION										
7.01	ALTA	3018		- - 1	Medicine River Plain								1L		
7.02	ALTA	1237		- - 1	Alix Upland	1L									
7.03	ALTA	691	**	3 3 10	Buffalo Lake Plain	1N	1N	1N	1L		1L	1R,7L		1R	1R,1L
7.04	ALTA	3694	*	1 2 3	Wetaskiwin Plain		1R,2L	1N,1R,1L							
7.05	ALTA	912	*	1 1 2	Bashaw Upland	1N	1L	1R					1L		
7.06	ALTA	1806		- 1 4	Battle River Plain	1L		1R,2L					1L		
7.07	ALTA	2277	**	1 11 9	Cooking Lake Upland	1R	2R,3L	1N,4R,2L	1R,1L		1L	3R	1L	1L	
7.08	ALTA	4627	*	1 2 3	Lake Edmonton Plain	1L		1N,1R				1R	2L		
7.09	ALTA	552		- 1 -	Glory Hills	1R									
7.10	ALTA	1331	*	2 1 8	Whitford Plain	1L	1L	2N			1L	1R,4L	1L		
7.11	ALTA	1015		- 1 4	Myrnam Upland	1L	1L						1R,2L		
7.12	ALTA	600		- 1 3	Therien Lake Plain	1L						1R,1L	1L		
7.13	S-A	4940	*	- 1 6	Thickwood Hills	1L							1R,5L		
7.14	SASK	1024		- 1 2	Witchekan Plain			1R			1L		1L		
7.15	SASK	2652		- - 1	Thickwood Hills Upland	1L									
7.16	SASK	1987		- - -	Shell River Plain										
7.17	SASK	1318		- - -	Nisbet Sand Plain										
7.18	SASK	781		- 1 2	Nipawin Plain			1L	1R		1L				
7.19	SASK	3630		- - -	Tisdale Plain										
7.20	SASK	1099		- - 3	Barrier River Upland		1L		2L						
7.21	SASK	4138		- 1 4	Red Deer River Plain			1R,1L	2L		1L				
7.22	SASK	5147		- - 2	Porcupine Upland	1L							1L		
7.23	S-M	2285		- - 2	Lac la Course Plain								2L		
7.24	M-S	2154		- - -	Swan River Plain										
7.25	M-S	515		- - -	Big Boggy Creek Upland										
7.26	MAN	2946		- 1 3	Riding Mountain Upland		1L	1L				1R	1L		
7.27	MAN	1673		- - -	Valley River Plain										
7.28	MAN	507		- - -	Riding Mountain Escarpment										

Table 5. (continued...9) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
7.29	MAN	2022		-	-	2	Upper Assiniboine Delta									2L	
7.30	MAN	2930		-	-	2	Dauphin Lake Plain			1L			1L				
7.31	MAN	2823	*	-	1	12	Crane River Plain		2L	3L	1L		3L	1R,2L		1L	
7.32	MAN	7694	***	4	8	31	Interlake Plain	1L	1L	10L	2R,7L	3L	2R,8L	4N,4R,1L			
7.33	MAN	1169		-	-	-	Icelandic River Lowland										
7.34	MAN	564		-	-	1	Lake Winnipeg Terrace						1L				
7.35	MAN	306	*	2	2	8	Red River Delta	1L	1N	1R		1L	1L	1N,1R,2L	2L		1L
7.36	MAN	952		-	1	2	Pine Ridge Plain							1R		2L	
7.37	MAN	1489		-	-	-	Caliento Plain										
7.201	ALTA	1040		-	-	1	Red Deer R./Raven R. to Drumheller									1L	
7.202	ALTA	455	*	-	3	2	Battle R./Coal Lk. to Castor Cr.	1L	1R	2R,1L							
7.203	A-S	1556	*	-	2	-	N Sask R./Andrew to N. Battleford							2R			
7.204	SASK	899		-	1	1	Sask R. + lower N. Sask R.							1R		1L	
7.205	S-M	847		-	-	-	Swan R./upper end to near Renwer										
7.206	SASK	38		-	-	-	Shell R./Shevlin area										
7.207	MAN	191		-	-	-	Assiniboine R./Spruce Woods Park										
7.301	MAN	1353		-	-	3	Lake Winnipeg/south 1/4								2L	1L	
		84884	-	-	-	-	(proportion of overall area = 4.36%)										
							MID-BOREAL MIXED-WOODS ECOREGION										
8.01	ALTA	2654	*	1	1	2	Pigeon Lake Upland			1L				1R	1N,1L		
8.02	ALTA	1075		-	-	1	Dr .; ton Valley Plain								1L		
8.03	ALTA	2660	*	-	2	5	Chip Lake Plain			1R				1R,4L			1L
8.04	ALTA	3831	**	1	4	13	Lac Ste Anne Plain		1L	1R,7L				1N,2R,2L	1R,3L		
8.05	ALTA	1278		-	-	-	Paddle River Plain										
8.06	ALTA	2980	*	1	-	1	Fort Assiniboine Plain							1N,1L			
8.07	ALTA	534		-	-	-	Barrhead Plain										
8.08	ALTA	960		-	-	-	Pembina Plain										
8.09	ALTA	1505		-	-	-	Westlock Plain										
8.10	ALTA	1472		-	1	2	Redwater Plain		1L					1R			1L
8.11	ALTA	3059	*	1	-	2	Thorhild Plain		2L	1N							
8.12	ALTA	495		-	-	1	White Earth Creek Plain	1L									
8.13	ALTA	720		-	-	-	Cache Lake Plain										

Table 5. (continued...10) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
8.14	ALTA	2960	**	3	3	7	Whitefish Upland	1L	1L	1N,1R,2L				2N,2R,2L	1L		
8.15	ALTA	762	**	2	2	10	Saddle Lake Plain	1R	1L	1N,6L				1N,1R,1L	2L		
8.16	ALTA	1180		-	-	2	Yelling Creek Plain			1L					1L		
8.17	S-A	6278	**	1	7	7	Cold Lake Hills	1L		2L				1N,7R,2L	2L		
8.18	ALTA	2963	***	6	10	21	Beaver River Plain	1L	3L	2N,8L			4L	4N,9R,3L	1R,2L		
8.19	A-S	27523	**	2	5	16	Moostoos Upland			1L				2N,5R,11L	4L		
8.20	ALTA	1227		-	1	1	Owl River Hills							1R	1L		
8.21	ALTA	2188	**	3	2	13	Missawawi Lake Plain		1L	5L				3N,2R,2L	5L		
8.22	ALTA	3605	*	1	1	-	La Biche Plain		1R	1N							
8.23	ALTA	3708		-	-	2	Lawrence Lake Plain		1L	1L							
8.24	ALTA	3852	*	-	1	8	Calling Lake Plain			6L				1R,1L	1L		
8.25	ALTA	8290		-	-	-	House Plain										
8.26	A-S	5621		-	1	2	Garson Plain	1L		1L					1R		
8.27	ALTA	1655		-	-	-	Hangingstone Plain										
8.28	ALTA	1840		-	-	2	Horse River Plain		1L	1L							
8.29	ALTA	1745		-	-	-	Kamistikowik Upland										
8.30	ALTA	8624	*	-	3	2	Wabasca Lake Plain			2R				1R,2L			
8.31	ALTA	4030		-	-	-	Peerless Lake Upland										
8.32	ALTA	3886	**	3	4	8	Utikuma Plain		1N	2N,2L				2R,4L	2R,2L		
8.33	ALTA	1341		-	-	-	Utikuma Ridge										
8.34	ALTA	2326		-	1	-	Lesser Slave Lake Plain			1R							
8.35	ALTA	5923		-	-	1	Heart River Upland			1L							
8.36	ALTA	1724	**	3	5	18	Winagami Lake Plain	1L	2R	1N,2R,2L			3L	5L	1N,1R,7L		1N
8.37	ALTA	1487		-	-	-	New Fish Creek Plain										
8.38	ALTA	2534	*	1	-	2	Falher Plain		1L	1N			1L				
8.39	ALTA	1795		-	-	3	Watino Plain			1L	1L		1L				
8.40	ALTA	1927		-	-	-	Rycroft Plain										
8.41	ALTA	1978	*	-	3	4	Kleskun Plain			1R,1L				1R,2L	1R	1L	
8.42	ALTA	1955		-	-	1	Smokey Plain									1L	
8.43	ALTA	1431	**	4	5	8	Clairmount Plain			2N,2R,1L			1L	1N,3R,2L	3L	1N	1L
8.44	ALTA	1968		-	-	-	Silver Valley Plain										
8.45	ALTA	2522		-	-	1	Worsley Plain			1L							
8.46	ALTA	3200	*	1	1	14	Cardinal Lake Plain			1N,1R,9L	2L		1L		2L		

Table 5. (continued...11) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
8.47	ALTA	1048		-	-	-	Peace River Benchland										
8.48	ALTA	1008		-	-	2	Whitemud Plain			2L							
8.49	ALTA	730		-	-	-	Three Creeks Benchland										
8.50	ALTA	3015		-	-	1	Notekevin River Plain			1L							
8.51	ALTA	1845		-	-	1	Manning Plain			1L							
8.52	ALTA	2000		-	-	-	Cadotte Plain										
8.53	ALTA	4417		-	-	1	Buffalo Head Hills									1L	
8.54	ALTA	2342		-	-	1	Bison Lake Plain			1L							
8.55	ALTA	2363		-	-	-	Buffalo River Plain										
8.56	ALTA	1255		-	-	-	Carcajou Plain										
8.57	ALTA	5711	*	-	2	6	Lubicon Plain	1L		2R,5L							
8.58	ALTA	10436		-	-	-	Loon Lake Plain										
8.59	ALTA	3745		-	-	-	Birch Mountains Escarpment										
8.60	ALTA	8524		-	-	3	Chipewyan River Plain			1L					2L		
8.61	ALTA	3537		-	-	-	Dover River Plain										
8.62	ALTA	3357		-	-	1	Steepbank River Plain			1L							
8.63	S-A	4111		-	-	-	High Hill River Plain										
8.64	S-A	3926		-	-	-	Firebag Hills										
8.65	ALTA	2131		-	-	-	Muskeg Mountain										
8.66	ALTA	704		-	-	-	Firebag Plain										
8.67	ALTA	4267		-	1	2	Embarras Plain			1R,2L							
8.68	ALTA	190		-	1	-	Fort Hills			1R							
8.69	ALTA	5587	**	5	1	4	Peace-Athabasca Delta	1N	1N	1N			1N	1R	4L	1N	
8.70	ALTA	5871		-	-	-	Lake Claire Plain										
8.71	ALTA	7571		-	-	-	Mikkwa Plain										
8.72	ALTA	1061		-	-	-	Jean D'Or Plain										
8.73	ALTA	3698		-	-	-	High Level Plain North										
8.74	ALTA	2606		-	-	-	Boyer River Plain										
8.75	ALTA	4197		-	-	-	High Level Plain										
8.76	ALTA	3440		-	-	-	Chinchaga North Plain										
8.77	ALTA	2355	*	2	1	1	Zama Lake Plain	1R	1L	1N			1N				
8.78	ALTA	3415		-	-	-	Rainbow Lake Plain										
8.79	ALTA	1889		-	-	-	Keg River Plain										

Table 5. (continued...12) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
8.80	SASK	11372	*	1	3	6	Ile a la Crosse Lowland	1L		2L			1L	1N,3R,1L	1L		
8.81	SASK	17620	*	1	3	11	Beaver River Plain			2R,2L	4L		1L	1R,4L		1N	
8.82	SASK	2916		-	-	-	Horsehead Creek Upland										
8.83	SASK	1045		-	-	-	Leoville Hills										
8.84	SASK	2589		-	-	-	Big River Plain										
8.85	SASK	10351	*	1	2	2	Waskesiu Hills Upland							1N,1R,2L	1R		
8.86	SASK	2212	*	-	2	2	Debden Plain	1L		2R,1L							
8.87	SASK	776		-	1	4	Paddockwood Plain	1L	1L	1R			1L		1L		
8.88	SASK	2369		-	-	2	Montreal Lake Plain								2L		
8.89	SASK	8825		-	-	-	Lac la Ronge Lowland										
8.90	SASK	3460		-	-	-	Whiteswan Upland										
8.91	SASK	4200		-	-	-	Wapawekka Hills Upland										
8.92	SASK	1629		-	-	-	Whitegull Creek Plain										
8.93	SASK	1239		-	-	-	Lower Torch River Plain										
8.94	SASK	1705		-	-	1	Smeaton-Weirdale Plain			1L							
8.95	SASK	927		-	1	-	La Corne Plain			1R							
8.96	SASK	1160		-	-	-	Whitefox River Plain										
8.97	SASK	3364		-	-	-	Carrot River Plain										
8.98	SASK	1640		-	-	-	Pasquia Hills Escarpment										
8.99	SASK	1354		-	-	-	Pasquia Hills Upland										
8.100	SASK	513		-	-	-	Wildcat Hills										
8.101	SASK	732		-	-	-	Fir River Benchland										
8.102	S-M	2307		-	-	-	Swan River Upland										
8.103	M-S	2221		-	-	-	Porcupine Mountain										
8.104	M-S	4332		-	-	1	Duck Mountain						1L				
8.105	MAN	1087		-	-	-	Riding Mountain										
8.201	ALTA	866		-	-	-	N. Sask R./Drayton V. to Andrew										
8.202	ALTA	727		-	-	-	Macleod R./Med. Lodge to Athabasca										
8.203	ALTA	1158		-	-	-	Athabasca R./Chickadee to Smith										
8.204	ALTA	732		-	-	-	Athabasca R./Smith to Duncan Cr.										
8.205	ALTA	1103		-	-	-	Athabasca R./Duncan Cr. to Ft McM.										
8.206	A-S	570		-	-	-	Clearwater River										
8.207	ALTA	955		-	-	-	Athabasca R./Ft McM. to P.A. Delta										

Table 5. (continued...13) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
8.208	ALTA	337		-	-	-	Wapiti R./upper portion										
8.209	ALTA	1500		-	-	2	Peace R./Peace R. town to bdry				1L		1L				
8.210	ALTA	2098		-	1	-	Peace R./Peace R. to Ft Vermilion						1R				
8.211	ALTA	2398	*	1	-	1	Peace R./Ft Vermil. to P.A. Delta						1L			1N	
8.212	ALTA	827		-	-	-	Chinchaga R./upper to Basset Lk.										
8.213	ALTA	1284		-	-	-	Hay R. + lower Chinchaga R.										
8.214	MAN	92		-	-	-	Shell R./upper portion of river										
8.301	S-A	8157		-	1	-	Lake Athabasca									1R	
8.302	SASK	483	*	1	2	1	Tobin Lake			1R					1N,1R,1L		
8.303	ALTA	1133	*	-	2	3	Lesser Slave Lake			1L				2R,1L	1L		
		376008	-	-	-	-	(proportion of overall area = 19.32%)										
							MID-BOREAL FOOTHILLS ECOREGION										
9.01	ALTA	1643		-	-	-	Elbow-Sheep Foothills										
9.02	A-S	622		-	-	-	Cypress Hills Plateau							1R	1L		
9.03	ALTA	1407		-	1	1	Burnstick Benchland										
9.04	ALTA	903		-	-	-	Little Red Deer River Plain						1L	1R			
9.05	ALTA	1651		-	1	1	Crimson Lake Plain										
9.06	ALTA	1410		-	-	-	Buck Lake Upland										
9.07	ALTA	1857		-	-	-	O'Chiese Benchland										
9.08	ALTA	719		-	-	-	Rose Creek Upland										
9.09	ALTA	1564		-	-	-	Brazeau Plain										
9.10	ALTA	1383		-	-	-	Elk River Benchland										
9.11	ALTA	1927		-	-	-	Pembina River Plain										
9.12	ALTA	1640		-	-	-	Fickle Lake Plain									1L	
9.13	ALTA	1393		-	-	1	McLeod River Plain										
9.14	ALTA	1452		-	-	-	Lobstick River Plain										
9.15	ALTA	995		-	-	-	Bigoray River Plain										
9.16	ALTA	1887		-	-	-	Cynthia Upland										
9.17	ALTA	1117		-	-	-	Blue Ridge Benchland										
9.18	ALTA	1321		-	-	-	Windfall Plain										
9.19	ALTA	1550		-	-	-	Fox Creek Benchland										
9.20	ALTA	4911		-	-	-	Freeman Benchland										

Table 5. (continued...14) Migratory bird habitat subregion priorities for the entire Prairie provinces.

(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
9.21	ALTA	2385		-	-	2	Iosegun Plain			2L							
9.22	ALTA	2466		-	1	1	Snipe Lake Benchland			1R					1L		
9.23	ALTA	2756		-	-	-	Pelican Mountain										
9.24	ALTA	2382		-	-	1	Simonette Benchland			1L							
9.25	ALTA	3819	*	1	1	1	Sturgeon Lake Plain			1N				1R		1L	
9.26	ALTA	609		-	-	-	Puskwaskau Hills										
9.27	ALTA	2346		-	-	1	Wapiti Plain									1L	
9.28	ALTA	3133	**	4	2	11	Beaverlodge Plain			3N,2R,9L			1L		1L	1N	
9.29	ALTA	2610		-	1	-	Saddle Hills									1R	
9.30	ALTA	931		-	-	1	Blueberry Plain									1L	
9.31	ALTA	10895		-	-	-	Clear Hills										
9.32	ALTA	3364		-	-	-	Chinchaga Plain										
9.33	ALTA	692		-	-	-	Bassett Hill										
9.201	ALTA	272		-	-	-	Red Deer R./Wildhorse R. to Raven R.										
9.202	ALTA	972		-	-	-	N. Sask R./Kootenay to Drayton Val.										
9.203	ALTA	563		-	-	-	Athabasca R./Hinton to Chickadee Cr.										
		71547	-	-	-	-	proportion of overall area = 3.68%)										
							BOREAL UPLANDS ECOREGION										
10.01	ALTA	2093		-	-	-	James-Red Deer Foothills										
10.02	ALTA	5336		-	-	-	Nordegg-Ram Foothills										
10.03	ALTA	2546		-	-	-	Gregg-Brazeau Foothills										
10.04	ALTA	5994		-	-	-	Berland Benchland										
10.05	ALTA	841		-	-	-	Wildhay Plain										
10.06	ALTA	2543		-	-	-	Little Smoky Plain										
10.07	ALTA	4120		-	-	-	Kakwa Benchland										
10.08	ALTA	2940		-	-	-	Cutbank Benchland										
10.09	ALTA	2652		-	-	-	Mayberne Benchland										
10.10	ALTA	5551		-	-	-	Swan Hills Upland										
		34616	-	-	-	-	(proportion of overall area = 1.78%)										

Table 5. (continued...15) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
							HIGH BOREAL PLAINS ECOREGION										
11.01	ALTA	2514		-	-	-	Milligan Hills										
11.02	ALTA	1469		-	-	-	Upper Chinchaga Plain										
11.03	ALTA	1349		-	-	-	Halverson Ridge Upland										
11.04	ALTA	720		-	-	-	Upper Notikewin River Plain										
11.05	ALTA	2430		-	-	-	Wadlin Lake Upland										
11.06	ALTA	1090		-	-	1	Russell Lake Upland									1L	
11.07	ALTA	6734	*	-	1	6	Birch Mountains Upland							1R,2L	3L	1L	
11.08	ALTA	1684		-	-	-	McIvor Upland										
11.09	ALTA	3844		-	-	-	Salt River Plain										
11.10	ALTA	7239		-	-	-	Knight's Creek Plain										
11.11	ALTA	5775	*	1	-	-	Buffalo River Plain									1N	
11.12	ALTA	7614		-	-	-	Caribou Mountain Escarpment										
11.13	ALTA	3651		-	-	-	Hay River Plain - North										
11.14	ALTA	3548		-	-	-	Hay River Plain - South										
11.15	ALTA	315		-	-	-	Mount Watt										
11.16	ALTA	7225		-	-	-	Zama Lake North Plain										
11.201	ALTA	886		-	-	-	Slave River										
		58087	-	-	-	-	(proportion of overall area = 2.98%)										
							HIGH BOREAL SANDPLAIN ECOREGION										
12.01	S-A	4428		-	-	-	Descharme River Plain										
12.02	S-A	7685		-	-	-	Richardson Upland										
12.03	S-A	6368		-	-	-	Lake Athabasca Plain										
12.04	SASK	4196		-	-	-	William River Plain										
12.05	SASK	10226		-	-	-	MacFarlane River Plain										
12.06	SASK	3592		-	-	-	Fond du Lac Plain										
12.07	SASK	11294		-	-	-	Pasfield Lake Plain										
12.08	SASK	5272		-	-	-	Cree Lake Upland										
12.09	SASK	6617		-	-	-	Waterbury Lake Upland										
12.01	SASK	6490		-	-	-	Wheeler River Upland										
12.11	SASK	13234		-	-	-	Clearwater River Upland										
12.12	SASK	6326		-	-	-	Snare River Upland										

Table 5. (continued...16) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
12.13	SASK	2660		-	-	-	Pipestone River Plain										
		88388	-	-	-	-	(proportion of overall area = 4.54%)										
							HIGH BOREAL PRECAMBRIAN ECOREGION										
13.01	S-A	20692	*	1	-	-	Tazin River Plain									1N	
13.02	SASK	8955		-	-	-	Wollaston Lake Plain										
13.03	SASK	28779		-	-	5	Foster Lake Plain								5L		
13.04	SASK	9625		-	-	-	Mudjatik River Plain										
13.05	SASK	9371		-	-	-	Upper Churchill River Plain										
13.06	S-M	34799		-	-	2	La Ronge - High Rock Lake Plain								2L		
13.07	M-S	22031		-	-	-	Kississing Lake Plain										
13.08	M-S	23638		-	-	-	Reindeer Lake Plain										
13.09	MAN	4306		-	-	-	Goldsand Lake Plain										
13.01	MAN	2768		-	-	-	Unagendu Lake Plain										
13.11	MAN	13096		-	-	-	Southern Indian Lake Plain										
13.12	MAN	7771		-	-	-	Pemichigumau Lake Plain										
13.13	MAN	18447		-	-	-	Three Point Lake Plain										
13.14	MAN	4436		-	-	-	Waskaiowaka Lake Plain										
13.15	MAN	23993		-	-	-	Knee Lake Plain										
13.16	MAN	8124		-	-	-	Stull River Plain										
13.17	MAN	10384		-	1	-	God's Lake Plain									1R	
13.18	MAN	14453		-	-	-	Bigstone River Plain										
13.19	MAN	19285		-	-	1	Upper Nelson River Plain								1L		
13.20	MAN	8628		-	-	1	Playgreen Lake Lowland								1L		
13.21	MAN	2996		-	-	-	Gunisao Lake Plain										
13.22	MAN	12379		-	-	-	Upper Hayes River Plain										
13.23	MAN	6760		-	-	-	Cobham River Plain										
13.24	MAN	8403		-	-	-	Island Lake Plain										
		324119	-	-	-	-	(proportion of overall area = 16.65%)										
							LOW SUBARCTIC UPLANDS ECOREGION										
14.01	ALTA	785		-	-	-	Petitot River Plain										
14.02	ALTA	10096		-	-	5	Cameron Hills Upland						1L		4L		

Table 5. (continued...17) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
14.03	ALTA	11840		-	-	-	Caribou Mountains										
14.04	ALTA	2602		-	-	-	Birch Mountains										
		25323	-	-	-	-	(proportion of overall area = 1.3%)										
							LOW SUBARCTIC PRECAMBRIAN ECOREGION										
15.01	SASK	1306		-	-	-	Selwyn Lake Upland										
15.02	M-S	61854		-	-	-	Upper Seal River Plain										
15.03	M-S	6032		-	-	-	Little Partridge River Upland										
15.04	MAN	9277		-	-	-	Tadoule Lake Plain										
15.05	MAN	8959	*	1	-	-	Big Sand Lake Plain									1N	
15.06	MAN	3105		-	-	1	Partridge Breast Plain				1L						
15.07	MAN	7926		-	-	-	Knife Lakes Plain										
15.08	MAN	28854		-	-	1	Limestone River Plain				1L						
		127313	-	-	-	-	(proportion of overall area = 6.54%)										
							HIGH SUBARCTIC ECOREGION										
16.01	MAN	14678		-	-	-	Caribou River Plain										
16.02	MAN	9961		-	-	-	Lower Seal River Plain										
16.03	MAN	1474		-	-	-	West Coast Flats										
		26113	-	-	-	-	(proportion of overall area = 1.34%)										
							HUDSON BAY LOWLANDS ECOREGION										
17.01	MAN	14891		-	-	-	Owl River Lowlands										
17.02	MAN	31477		-	-	-	Lower Nelson River Plain										
17.03	MAN	4425		-	-	-	Wigwam Creek Plain										
17.04	MAN	3733		-	-	-	Kettle River Plain										
		54526	-	-	-	-	(proportion of overall area = 2.8%)										
							SUBARCTIC COASTAL LOWLAND ECOREGION										
18.01	MAN	3858	*	3	-	4	Rupert Creek Lowland	1L		1L	1N	1L	1L			1N	1N
18.02	MAN	6447		-	-	1	Kaskattama River Lowland	1L									
18.03	MAN	2193		-	-	1	Cape Tatnam Beaches	1L									
18.04	MAN	369		-	-	1	Port Nelson Beaches	1L									

Table 5. (continued...18) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
18.05	MAN	908	*	1	-	5	Cape Churchill Beaches	1L	1L	1L	1N	1L	1L				
		13775	-	-	-	-	(proportion of overall area = 0.71%)										
							MID-BOREAL PRECAMBRIAN ECOREGION										
19.01	MAN	10616		-	-	-	Poplar River Plain										
19.02	MAN	17433		-	1	-	Bloodvein River Plain							1R			
19.03	MAN	8303		-	-	-	Mantario Lake Upland										
19.04	MAN	3081		-	1	-	Manigotagan Lake Plain							1R			
19.05	MAN	1530	*	1	3	-	Wanipigou River Plain							1N,3R			
		40963	-	-	-	-	(proportion of overall area = 2.1%)										
							MID-BOREAL LOWLANDS ECOREGION										
20.01	SASK	6631		-	-	-	Mossy River Plain										
20.02	SASK	1617		-	-	-	Delta Beaches										
20.03	SASK	4131	*	-	2	-	Suggi Lake Lowland							2R			
20.04	M-S	4542		-	-	3	Namew Lake Plain			1L	1L		1L				
20.05	S-M	6134	***	3	9	27	Upper Saskatchewan Delta	1R	1N,2R,4L	2N,4R,10L	5L	1L	5L		2R,2L		
20.06	M-S	6022	*	1	2	-	Overflowing River Lowland			1N	1R		1R				
20.07	MAN	3895	*	-	2	-	The Pas Moraine							1R		1R	
20.08	MAN	2468		-	-	9	Summerberry Lowland	1L		3L	1L		4L				
20.09	MAN	16133	**	1	5	5	Moose Lake Plain			1L			1L	1N,5R,3L			
20.10	MAN	4340		-	-	-	Hargrave Lowland										
20.11	MAN	1033		-	-	-	Grand Rapids Lowland										
20.12	MAN	8879	***	12	12	15	Winnipegosis Plain			2L	1L		1L	11N,12R,11L		1N	
20.13	MAN	2720		-	-	-	Swan Lake Plain										
20.14	MAN	667		-	-	-	Duck Mountain Escarpment										
20.15	MAN	9094	**	2	4	6	Waterhen Lake Plain		1L	1R			1L	2N,3R,3L		1L	
20.16	MAN	1024		-	-	5	Lake St. Martin Lowland		1L	1L	1L	1L	1L				
20.17	MAN	4140		-	-	2	Sturgeon Bay Lowland				2L						
20.18	MAN	2593		-	1	1	Mantagao Lake Plain				1L		1R				
20.19	MAN	2623	*	1	2	5	Fisher River Plain			1R,1L	3L		1N,1R,1L				
20.20	MAN	4567	*	1	3	4	Grindstone Point Lowland			1R	1R	1L	1R	1N,2L		1L	
20.301	MAN	15739	**	2	6	3	Lake Winnipeg/north 2/3							1N,6R,3L		1N	
		108992	-	-	-	-	(proportion of overall area = 5.6%)										

Table 5. (continued...19) Migratory bird habitat subregion priorities for the entire Prairie provinces.
(cumulative importance based specifically upon species group ratings: N = National importance, R = Regional importance, L = Local importance)

Map unit	Prov	Area km²	I+ M P	Number of sites N	R	L	Habitat subregion/ Ecoregion	Duck Breed	Duck Moult	Duck Stage	Goose Breed	Goose Moult	Goose Stage	Colonial Breed	Colonial Nonbr	Threatened Breed	Shorebird Stage
							LOW BOREAL ECOREGION										
21.01	MAN	2420		-	-	-	Bedford Hills										
21.02	MAN	2399		-	-	-	Brokenhead River Plain										
21.03	MAN	2962		-	1	1	Lac Du Bonnet Plain							1R		1L	
21.04	MAN	4020	**	-	5	18	Whiteshell River Plain			15L	1L		2L	4R		1R	
21.05	MAN	3450		-	-	-	Whitemouth Lake Lowland										
		15251	-	-	-	-	(proportion of overall area = 0.78%)										
							TALL-GRASS PRAIRIE ECOREGION										
22.01	MAN	8819	*	1	1	-	Red River Valley			1R			1N				
22.201	MAN	314		-	-	-	Red River/bdry to nr Winnipeg										
22.202	MAN	246		-	-	-	Assiniboine R./Portage to Winnipeg										
		9379	-	-	-	-	(proportion of overall area = 0.48%)										
PRAIRIES: ALL ECOREGIONS																	
		1946419		219	527	1390	(proportion of overall area = 100%)										

+ *** - Habitat subregion with 80+ assigned points (National importance)
** - Habitat subregion with 40 to 79 assigned points (Regional importance)
* - Habitat subregion with 10 to 39 assigned points (Local importance)

4.0 HABITAT USE BY WATERFOWL

4.1 Duck Breeding

Twenty-six duck species breed in the Prairie provinces, including 10 species of dabblers (primarily upland-nesters) and 16 species of divers (primarily over-water nesters). Distribution of duck species and their relative abundance varies with the range of suitable habitats for nesting, brood-rearing and moulting.

Within the Prairie Ecozone, the Grassland and Parkland ecoregions provide the most significant complex of breeding habitat on the continent (Hochbaum 1983). Based upon habitat-related density estimates of Patterson (1978), and extrapolated to the entire grassland/parkland portion of the Prairie provinces, an estimated 16.7 million ducks breed within this area (about 25 percent of the entire continental breeding duck population) (Sheehan *et al.* 1987). For several species of ducks, over 50 percent of their population traditionally breeds in the Prairie provinces.

Some modifications to the site-based approach are necessary for assessing duck breeding habitat. The habitat subregion is the basis for the priority classification because of the difficulty in mapping all sites of breeding or occurrence. The relative proportion of high to moderately high capability habitats (Canada Land Inventory Class 1-2 and Class 3) within each habitat subregion is the basis for priority classification, in conjunction with the subregion's size, which influences the overall contribution to the Prairie-wide population of breeding ducks.

Densities of duck breeding populations vary geographically. Lands with high capability for breeding waterfowl - Canada Land Inventory (CLI) Class 1-2 - have from 85 ducks/km^2 in Alberta, to 80 ducks/km^2 in Manitoba and 69 ducks/km^2 in southwest and southeast Saskatchewan (Patterson 1978). CLI Class 3 habitats, which have a slight limitation to waterfowl breeding, have a similar variation in densities: Alberta - 62 ducks/km^2; Manitoba - 36 ducks/km^2; and Saskatchewan, in the southwest - 47 ducks/km^2, and in the southeast - 39 ducks/km^2. CLI Class 4 lands have somewhat lower densities or have irregular annual production. Lands less suitable for duck production (CLI Classes 5 to 7) have substantially lower densities.

In assessing habitat priority on a habitat subregion basis throughout the Prairie provinces, the proportion of Class 1-2 and Class 3 lands within each subregion was determined by computer digitizing and then related to other subregions of similar sizes. Based on a prairie and parkland duck population of 16.7 million birds, a sum total of 167 000 ducks constitutes one percent of the population and is therefore considered a nationally significant proportion. That number of ducks requires approximately 2000 km^2 of Class 1-2 lands in Alberta, or 4600 km^2 of Class 3 lands in Manitoba.

Following are the specific criteria for classifying importance of habitat subregions:

Nationally important subregion for breeding ducks:

<2000 km^2, of which - CLI 1-2 = 75% or more of the area;
or CLI 1-2-3 = 90% or more

2000 to 4000 km², of which - CLI 1-2	=	55% or more of the area;
or CLI 1-2-3	=	80% or more
>4000 km², of which - CLI 1-2	=	35% or more of the area;
or CLI 1-2-3	=	65% or more

Regionally important subregion:

<2000 km², of which - CLI 1-2-3	=	60% to 90% of the area;
2000 to 4000 km², of which - CLI 1-2	=	30% to 55% of the area;
or CLI 1-2-3	=	60% to 80% of the area
>4000 km², of which - CLI 1-2	=	20% to 30% of the area;
or CLI 1-2-3	=	40% to 65%

Locally important subregion:

<2000 km², of which - CLI 1-2-3	=	35% to 60% of the area
2000 to 4000 km², of which - CLI 1-2-3	=	30% to 60% of the area
>4000 km², of which - CLI 1-2-3	=	20% to 40% of the area

Using these criteria, ratings of habitat subregions for breeding ducks are: 13 of national importance, 32 of regional importance, and 54 of local importance (**Figure 3** and **Table 6**).

Included in the above are 20 habitat subregions that, overall, do not meet criteria regarding proportions of CLI 1-2-3, yet have notable habitat - such as important large lakes, wetland complexes or many small wetlands that support significant densities of breeding ducks. Accordingly, ratings are primarily derived from results of annual Canadian Wildlife Service/United States Fish and Wildlife Service (USFWS) breeding pair surveys (Reynolds 1987) (see footnote of Table 6).

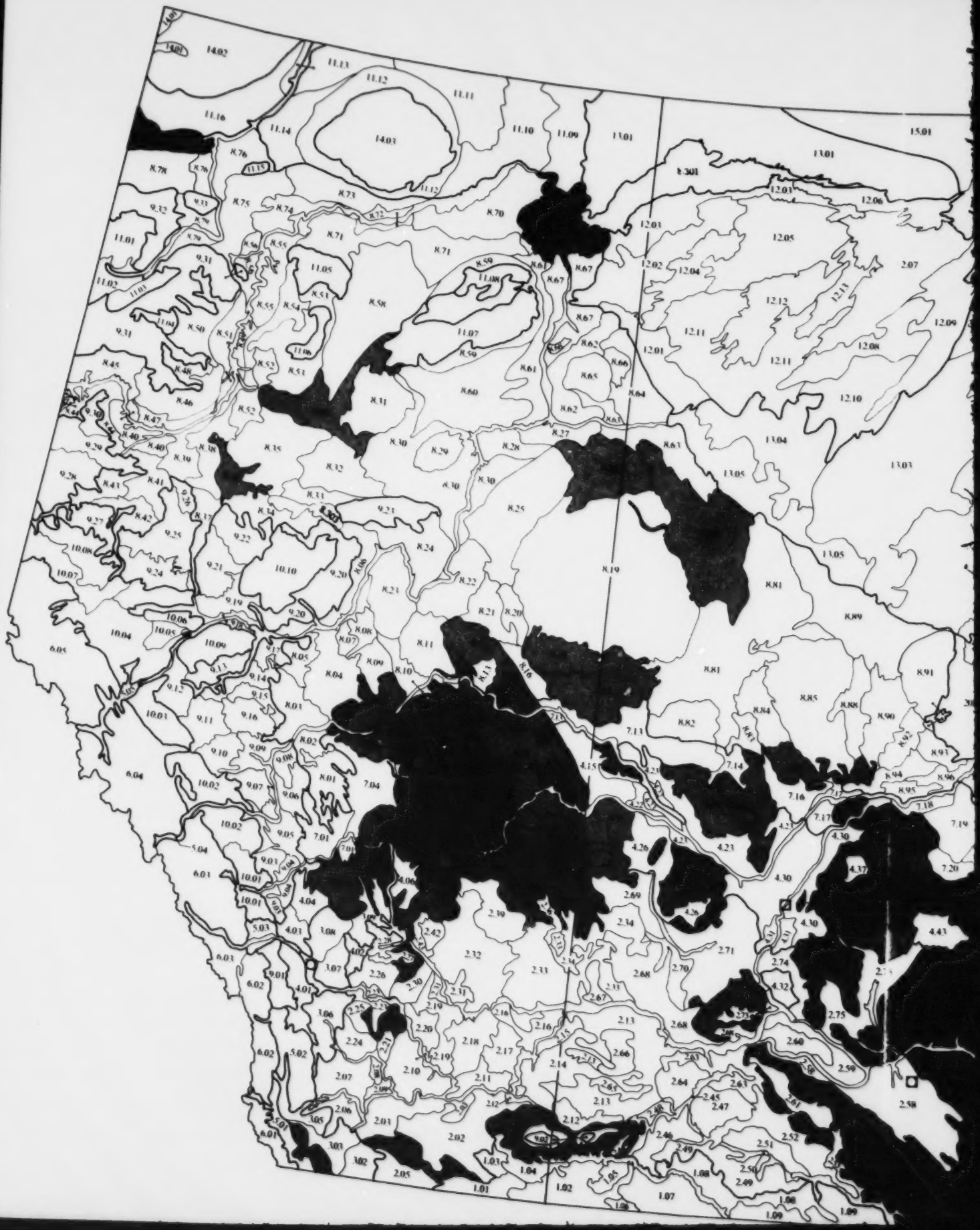
In some circumstances, particularly on vegetated islands in isolated large lakes or wetlands, ducks and other species of prairie waterfowl breed in high densities. Some examples are: 1) in the two-year period, 1985 and 1986, islands in Jessie Lake, Alberta, of approximately 4-hectares (9-acres) in size, had 1449 nests, primarily Gadwall and Lesser Scaup (Turner *et al.* 1988); 2) in 1989, 45-hectares (101-acres) of dense nesting cover on the "Raven Island National Wildlife Area", Lenore Lake, Saskatchewan, had over 260 breeding pairs of Gadwall, Mallard, Lesser Scaup and other species (B. Poston, CWS, *unpubl. data*); and, 3) islands of Redberry Lake, Saskatchewan, have had, over the long term, large numbers of White-winged Scoter.

Island nesting by waterfowl enhances production because of: generally stable water levels; excellent vegetative cover, including grasses, shrubs and trees; and, isolation from mammalian predators and disturbance. Many islands of larger waterbodies may regularly support concentrations of breeding waterfowl.

The management focus toward ducks of the Prairie provinces is being coordinated under the North American Waterfowl Management Plan (page 63).

Table 6. Habitat subregions and sites - breeding ducks.

Unit No.	Prov	Area (km²)	Rating+	Habitat subregion	Proportion of CLI area (in percent)++		
					Class 1-2	3	4
2.40	Alta	591	***	Rumsey Upland	80	20	0
4.08	Alta	2512	***	Battle River Upland	70	15	10
4.17	Alta	1277	***	Birch Lake Plain	90	5	5
4.18	Alta	5175	***	Killam Plain	45	35	15
4.20	Alta	2853	***	Beaverhill Lake Plain	40	40	20
4.41	Sask	8299	***	Ponass Lakes Plain	35	35	25
4.45	Sask	2715	***	Touchwood Upland	70	25	10
4.54	Sask	2495	***	Pheasant Hills Upland	80	5	10
4.56	S-M	4432	***	Pipestone Plain	35	35	20
4.58	S-M	6166	***	Gainsborough Creek Plain	60	20	10
7.03	Alta	691	***	Buffalo Lake Plain	85	5	10
7.05	Alta	912	***	Bashaw Upland	95	5	5
8.69	Alta	5587	***	Peace-Athabasca Delta	-	-	-
2.29	Alta	747	**	Deadhorse Lake Upland	15	60	15
2.35	S-A	1706	**	Neutral Upland	35	30	40
2.37	Alta	891	**	Monitor Hills	25	40	25
2.55	Sask	5832	**	Missouri Coteau	15	35	35
2.56	Sask	3950	**	Missouri Coteau South	30	20	20
4.06	Alta	1350	**	Delburne Upland	70	10	10
4.07	Alta	3964	**	Castor Plain	35	5	20
4.12	Sask	2734	**	Provost Upland	40	20	25
4.14	Alta	2620	**	Vermilion Upland	45	25	25
4.19	Alta	1698	**	Mundare Plain	50	25	30
4.21	Sask	760	**	Hillmond Upland	45	15	15
4.28	Sask	3264	**	Eagle Hills	35	30	35
4.34	Sask	1843	**	Allan Hills	55	20	15
4.35	Sask	1954	**	Colonsay Plain	35	45	20
4.36	Sask	3741	**	Minichinas Hills Upland	35	35	25
4.38	Sask	621	**	Red Deer Hills	65	25	10
4.39	Sask	2991	**	Melfort Plain	30	30	30
4.42	Sask	2929	**	Lanigan Creek Plain	25	40	30
4.44	Sask	3937	**	Touchwood-Beaver Hills	45	30	30
4.46	Sask	2096	**	Last Mountain Plain	25	40	40
4.47	Sask	578	**	Last Mountain Upland	50	35	15
4.48	Sask	1381	**	Buffalo Pound Upland	55	25	15
4.50	Sask	4249	**	Touchwood Slope	20	40	40
4.52	Sask	5459	**	Yorkton Plain	20	40	30
4.55	Sask	10758	**	Moose Mountain Upland	20	45	30
4.62	Man	7149	**	Newdale Plain	20	40	25
4.67	Man	2529	**	Boissevain Plain	35	20	30
7.07	Alta	2277	**	Cooking Lake Upland	30	40	20
7.09	Alta	552	**	Glory Hills	65	5	15



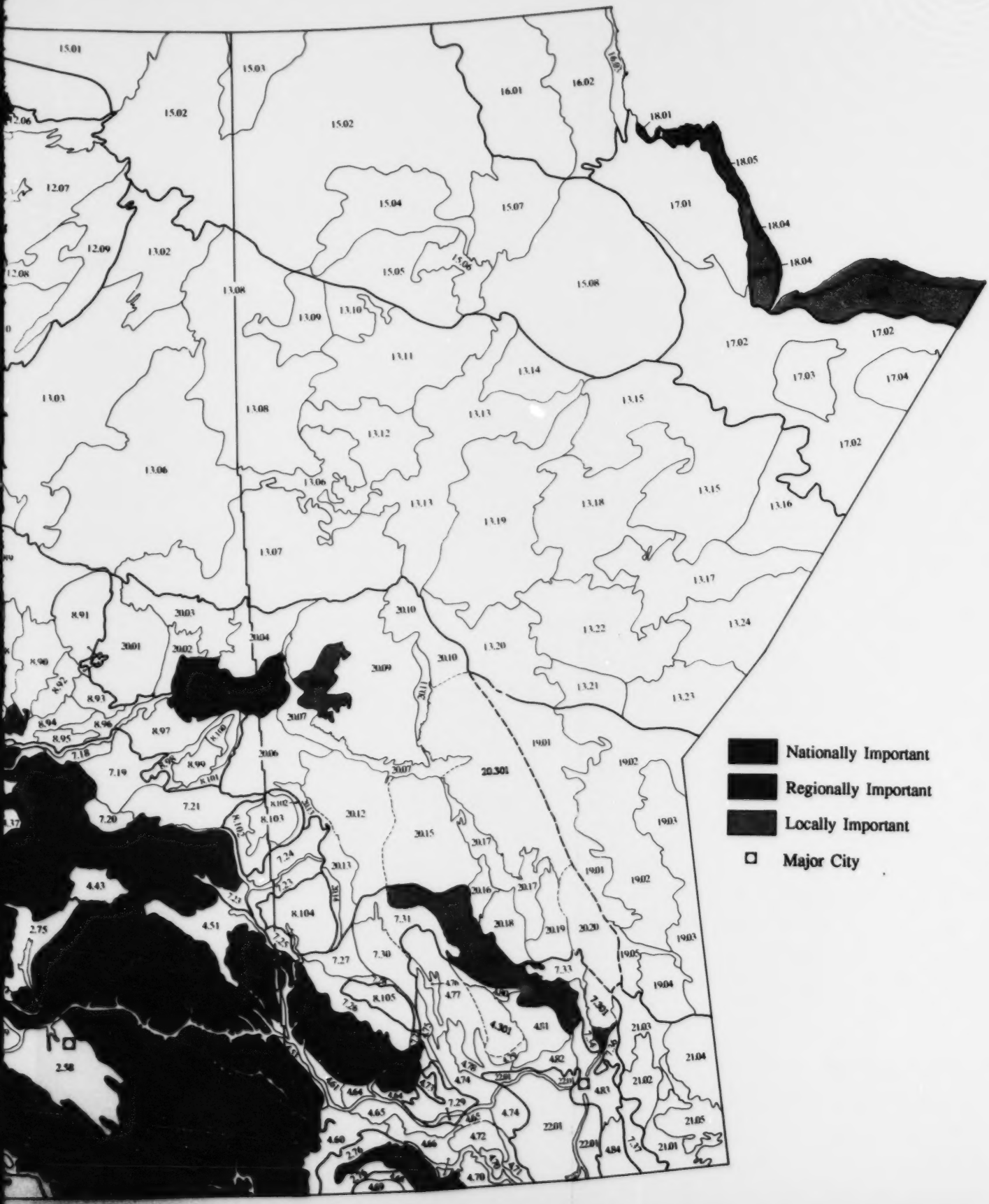


Fig. 3 Duck breeding habitats

Table 6. (continued...2) Habitat subregions and sites - breeding ducks.

Unit No.	Prov	Area (km²)	Rating+	Habitat subregion	Proportion of CLI area (in percent)++		
					Class 1-2	3	4
8.15	Alta	762	**	Saddle Lake Plain	60	15	20
8.77	Alta	2355	**	(Zama Lake Plain)+	-	-	-
20.05	S-M	6134	**	(Upper Saskatchewan Delta)+	-	-	-
2.01	S-A	4668	*	Cypress Hills Benchland	10	10	5
2.04	Alta	2209	*	(Verdigris Plain)+	0	5	5
2.22	Alta	979	*	Majorville Upland	25	35	5
2.38	Alta	1120	*	Coronation Plain	30	5	30
2.41	Alta	1693	*	Chain Lakes Plain	10	35	45
2.54	Sask	1431	*	Amulet Hills	10	30	20
2.57	Sask	7902	*	(Long Creek Plain)+	0	15	45
2.62	Sask	654	*	Shamrock Upland	0	40	60
2.72	Sask	3329	*	Coteau Hills	15	30	35
2.211	Sask	437	*	Souris R./upper to Bienfait	35	25	5
3.04	Alta	1033	*	Waterton Upland	25	15	25
4.05	Alta	3234	*	Kneehills Upland	10	25	20
4.09	Alta	255	*	Neutral Hills	50	0	0
4.10	Alta	1710	*	Ribstone Plain	15	30	15
4.11	A-S	1843	*	Dilberry Plain	25	10	10
4.13	A-S	2213	*	Edgerton Plain	20	30	10
4.16	Alta	4068	*	Innisfree Plain	25	15	30
4.24	Sask	5134	*	Redberry Lake Upland	15	25	30
4.25	Sask	1343	*	Fremont Upland	30	25	25
4.27	Sask	1570	*	Cutknife Hills	15	35	35
4.29	Sask	1236	*	Whiteshore Lake Plain	15	20	60
4.33	Sask	1704	*	Kenaston Upland	20	35	35
4.40	Sask	1905	*	Tiger Hills Upland	15	25	40
4.49	Sask	2688	*	Balcarres Plain	20	25	30
4.57	Sask	1166	*	Moose Mountain	40	10	5
4.59	Sask	5980	*	(Souris River Plain)+	0	10	70
4.63	Man	1575	*	Rackham Hills	15	20	35
7.02	Alta	1237	*	Alix Upland	25	10	10
7.06	Alta	1806	*	Battle River Plain	15	30	30
7.08	Alta	4627	*	Lake Edmonton Plain	15	10	35
7.10	Alta	1331	*	Whitford Plain	25	20	25
7.11	Alta	1015	*	Myrnam Upland	30	10	30
7.12	Alta	600	*	Therien Lake Plain	25	45	15
7.15	Sask	2652	*	Thickwood Hills Upland	25	20	25
7.22	Sask	5147	*	Porcupine Upland	10	25	50
7.32	Man	7694	*	(Interlake Plain)+	0	5	10
7.35	Man	306	*	(Red River Delta)+	0	30	15
7.202	Alta	455	*	(Battle R./Coal Lk. to Castor Cr.)+	15	5	25
8.12	Alta	495	*	White Earth Creek Plain	15	20	25

Table 6. (continued...3) Habitat subregions and sites - breeding ducks.

Unit No.	Prov	Area (km^2)	Rating+	Habitat subregion	Proportion of CLI area (in percent)++		
					Class 1-2	3	4
8.14	Alta	2980	*	(Whitefish Upland)+	10	15	25
8.17	S-A	6278	*	Cold Lake Hills	10	15	35
8.18	Alta	2963	*	(Beaver River Plain)+	10	15	15
8.26	A-S	5621	*	(Garson Plain)+	-	-	-
8.36	Alta	1724	*	(Winagami Lake Plain)+	-	-	-
8.57	Alta	5711	*	(Lubicon Plain)+	-	-	-
8.80	Sask	11372	*	(Ile a la Crosse Lowland)+	-	-	-
8.86	Sask	2212	*	Debden Plain	10	20	55
8.87	Sask	776	*	(Paddockwood Plain)+	0	5	70
18.01	Man	3858	*	(Rupert Creek Lowland)+	-	-	-
18.02	Man	6447	*	(Kaskattama River Lowland)+	-	-	-
18.03	Man	2193	*	(Cape Tatnam Beaches)+	-	-	-
18.04	Man	369	*	(Port Nelson Beaches)+	-	-	-
18.05	Man	908	*	(Cape Churchill Beaches)+	-	-	-
20.08	Man	2468	*	(Summerberry Lowland)+	-	-	-

++ values rounded upward at 5 percent increments (e.g., 0-2%=0, 3-5%=5)
+ habitat subregions in brackets are based on individual wetland(s) or breeding pair transect surveys, as below:

Subregion Unit No.	Wetlands/Transect	Subregion Unit No.	Wetlands/Transect
8.77	Hay-Zama Lakes	8.26	Gordon Lake
20.05	Cumberland Delta	8.36	Buffalo Bay/Horse Lakes
		8.57	unnamed lakes
2.04	Rush Lake/Verdigris Coulee	8.88	Kazan Lake
2.57	Ceylon/Goodwater transect	8.87	Cheal/Russell Lakes
4.59	Browning/Fillmore transect	18.01	unnamed wetlands
7.32	Chatfield/Dennis/Russell Lakes	18.02	unnamed wetlands
7.35	Netley Marsh	18.03	unnamed wetlands
7.202	Driedmeat Lake	18.04	unnamed wetlands
8.14	Reed Lake	18.05	unnamed wetlands
8.18	Forsyth/Jessie Lakes	20.08	The Pas transect

4.2 Duck Moulting

Waterfowl require secure habitat during moulting periods, particularly because of their post-breeding flightless state. Non-breeding and failed breeders, including males of most species, moult earlier than brood-rearing females (Bellrose 1976). By mid-summer, ducks leave nesting areas for waterbodies where they moult. These sites provide abundant food and protection against predators: marshes for dabblers and large open-waters for divers.

Moulting areas and sites of national importance have flocks of more than 20 000 ducks (or 8000+ ducks of a single species); regional sites have flocks of 5000 to 20 000 ducks (or 3000 to 8000 ducks of a single species); and local sites have flock sizes of 1000 to 5000 ducks. There are 7 national, 27 regional, and 121 locally important moulting sites (**Figure 4** and **Tables 7, 7a**).

Boreal forest lakes, especially those in northern Alberta, are well represented because large numbers of diving ducks concentrate on large eutrophic lakes specifically for moulting. In Manitoba and Saskatchewan, the oligotrophic lakes of the Precambrian Shield appear not to provide sufficient food for very large flocks of divers.

4.3 Duck Staging

Ducks breeding in ponds of the prairies and parklands subsequently stage in late summer on nearby large, less ephemeral waterbodies. Arctic- and boreal-nesting ducks stage at a few sites in boreal subregions and on prairie and parkland wetlands. Ducks often concentrate even further on waterfowl crop damage control program sites and areas (Kost 1987), where feeding programs and protection encourage this behaviour.

There are 46 widely distributed nationally important staging sites for ducks, with flock sizes of more than 20 000. Furthermore, there are 125 regional sites with flocks of 5000 to 20 000 (**Figure 5** and **Table 8**). There are also 280 local staging sites with 2000 to 5000 ducks on a regular basis (**Table 8a**).

4.4 Goose Breeding

Three species of geese breed in the Prairie provinces - the *Canada Goose*, (having eight distinct subpopulations); the *Snow Goose*, breeding at La Perouse Bay, near Churchill, Manitoba; and the *Ross' Goose* breeding at Cape Churchill, Manitoba (Godfrey 1986). In the Prairie provinces, breeders of the latter two species constitute minor proportions of their Canadian populations (Bellrose 1976, Anonymous 1986).

From the late 1970s, Canada Geese have increased or at least maintained numbers in the Prairie provinces (Waterfowl Status Reports: 1976-1987, based upon winter population index surveys).

The Canada Goose is more sparsely distributed than the duck population, and its abundance on the breeding range is less well known. There are no national sites with more than 200 breeding pairs of Canada Geese; there are, however, 36 regionally important sites with 30 to 200 breeding pairs, and 103 local sites with 15 to 30 breeding pairs. Apart from Canada Geese, the Snow Goose colony at La Perouse Bay is nationally important; there were 4500 breeding pairs in 1978, the

Table 7. Sites and habitat subregions - moulting ducks.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
2.61	Sask	1699	***	Old Wives Lake Basin	OLD WIVES LAKE
4.20	Alta	2853	***	Beaverhill Lake Plain	BEAVERHILL LAKE
7.03	Alta	691	***	Buffalo Lake Plain	BUFFALO LAKE
7.35	Man	306	***	Red River Delta	NETLEY MARSH
8.32	Alta	3886	***	Utikuma Plain	UTIKUMA LAKE
8.69	Alta	5587	***	Peace-Athabasca Delta	P.A. DELTA
20.05	S-M	6134	***	Upper Saskatchewan Delta	KENNEDY / BOURASSA LAKES
1.03	Alta	6134	**	Pakowki Plain	PAKOWKI LAKE
2.20	Alta	1090	**	Lake Newell Plain	SAN FRANCISCO LAKES
2.210	Sask	1312	**	Qu'Appelle R./Lk. Dief. to Lumsden	PELICAN LAKE
2.45	Sask	1358	**	Swift Current Creek Valley	REED LAKE
2.53	Sask	1838	**	Willow Bunch-Big Muddy Valley	LAKE OF THE RIVERS
2.55	Sask	5832	**	Missouri Coteau	SCOTTIE LAKE
2.71	Sask	6528	**	Eagle Creek Plain	GOOSE LAKE
2.75	Sask	4740	**	Upper Qu'Appelle Plain	GOVAN SLOUGH
2.75	"	"	**	Upper Qu'Appelle Plain	KUTAWAGAN LAKE
2.75	"	"	**	Upper Qu'Appelle Plain	PEL LAKE
4.11	Alta	1843	**	Dilberry Plain	RIBSTONE LAKE
4.13	A-S	2213	**	Edgerton Plain	MANITOU LAKE
4.20	Alta	2853	**	Beaverhill Lake Plain	BITTERN LAKE
4.30	Sask	7509	**	S. Saskatchewan River Plain	RICE LAKE
4.39	Sask	2991	**	Melfort Plain	STINKING LAKES
4.40	Sask	1905	**	Tiger Hills Upland	JUMPING LAKES
4.41	Sask	8299	**	Ponass Lakes Plain	RANCH LAKE
4.78	Man	1575	**	Whitemud River Plain	BIG GRASS MARSH
7.04	Alta	3694	**	Wetaskiwin Plain	BEARHILLS LAKE
7.07	Alta	2277	**	Cooking Lake Upland	COOKING LAKE
7.07	"	"	**	Cooking Lake Upland	MINISTIK LAKE
7.202	Alta	455	**	Battle R./Coal Lk. to Castor Cr.	DRIEDMEAT LAKE
8.22	Alta	3605	**	La Biche Plain	FLAT LAKE
8.36	Alta	1724	**	Winagami Lake Plain	KIMIWAN LAKE
8.36	"	"	**	Winagami Lake Plain	WINAGAMI LAKE
20.05	S-M	6134	**	Upper Saskatchewan Delta	MEADOW LAKE
20.05	"	"	**	Upper Saskatchewan Delta	REDEARTH LAKE

+ *** = National importance
** = Regional importance

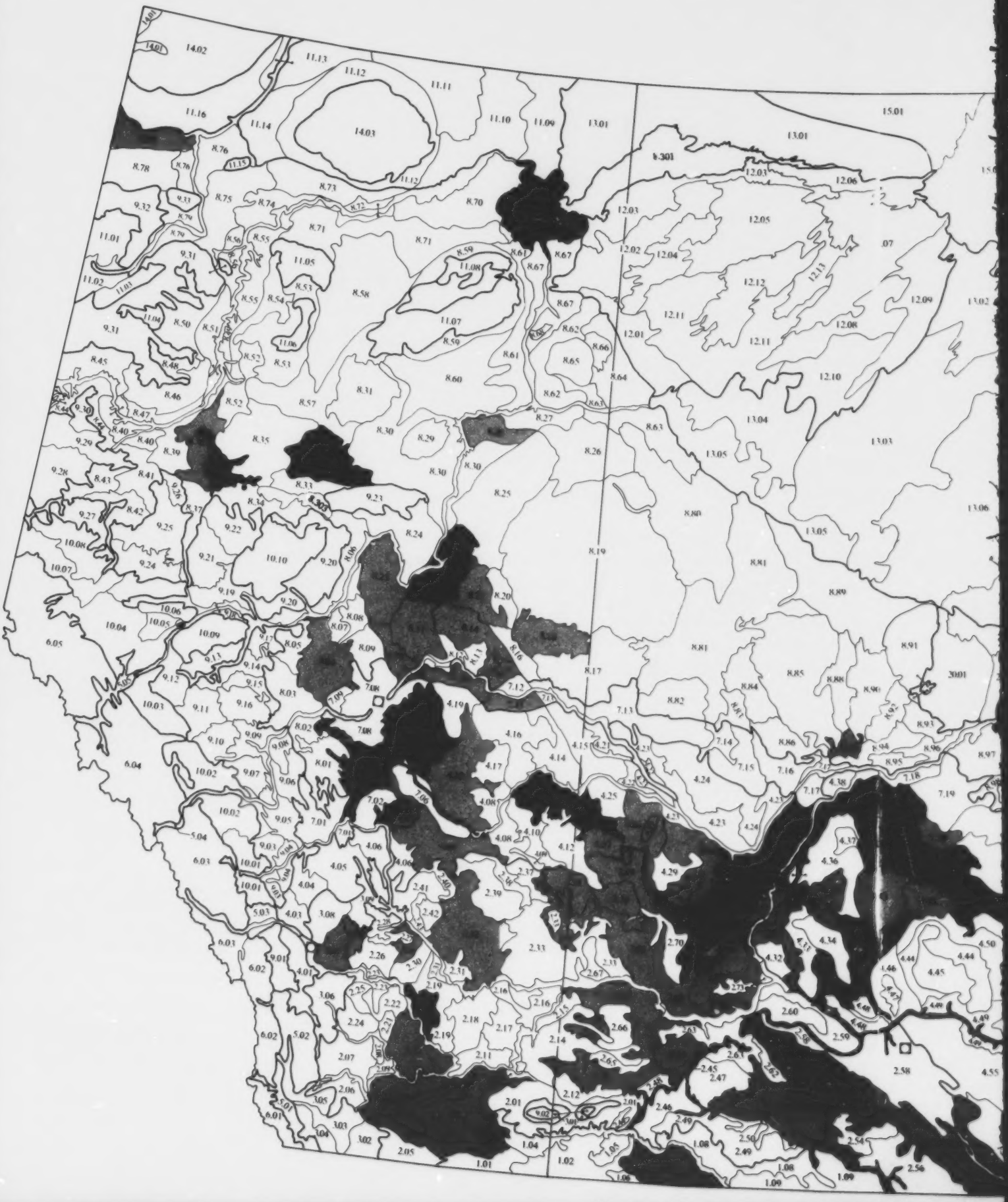


Fig. 4 Duck moulting habitats

Table 7a. Sites of local importance for moulting ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
1.07	Sask	Frenchman River Plateau	Island Lake
2.02	Alta	Chin Plain	Crow Indian Lake; 40-Mile Coulee south
2.03	Alta	Fincastle Plain	40-Mile Coulee north; Yellow Lake
2.04	Alta	Verdigris Plain	Tyrrell Lake; Verdigris Coulee
2.10	Alta	Enchant Plain	Lonesome Lake
2.13	S-A	Bigstick Lake Plain	Crane Lake
2.210	Sask	Qu'Appelle R./Lk. Dief. to Lumsden	Buffalo Pound Lake; Eyebrow Lake; Kettlehut Lake; Paysan Lake
2.212	Sask	Eagle Cr./Scott-Zealandia	Opuntia Lake
2.29	Alta	Deadhorse Lake Upland	Seiu Lake
2.302	Sask	Last Mountain Lake	Last Mtn. Lake - central, and north
2.32	Alta	Richdale-Cessford Plain	Oakland Lake
2.34	S-A	Sibbald Plain	Dewar Lake; Kiyiu Lake; White Heron Lake
2.35	S-A	Neutral Upland	Slough north of Court
2.36	Alta	Grassy Island Plain	Grassy Island Lake
2.51	Sask	Lower Wood River Plain	Thomson Lake; W. of Lakenheath
2.52	Sask	Notukeu Creek Plain	Shallow Lake
2.53	Sask	Willow Bunch-Big Muddy Valley	Big Muddy Lake; 12-Mile Lake
2.57	Sask	Long Creek Plain	Dry Lake
2.61	Sask	Old Wives Lake Basin	Chapleau Lake
2.64	Sask	Antelope Lake Plain	Antelope Lake
2.68	Sask	Kindersley Plain	Bad Lake; Cutbank Lake; D'Arcy Slough; Snipe Lake
2.69	Sask	Tramping Lake Plain	David Marsh; Luseland Slough
2.71	Sask	Eagle Creek Plain	Barber Lake; Catherwood Slough; Milden Lake; Van Scoy Lake; Whitebear Lake
2.72	Sask	Coteau Hills	Coteau Lake; Luck Lake
2.74	Sask	Brightwater Creek Plain	Indi Lake
2.75	Sask	Upper Qu'Appelle Plain	Axe Lake; S.W. Axe Lake; Bank Lake; Stalwart Marsh
2.76	Man	Boissevain-Hartney Plain	Whitewater Lake
3.07	Alta	Serviceberry Creek Plain	Langdon Reservoir; Texas-Irricana Lakes
4.02	Alta	Strathmore Plain	Irricana Reservoir; Irricana Slough
4.07	Alta	Castor Plain	Shooting Lake
4.13	A-S	Edgerton Plain	Little Manitou Lake; Reflex Lake; Seagram Lakes

Table 7a. (continued...2) Sites of local importance for moulting ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
4.18	Alta	Killam Plain	Wavy Lake
4.206	Sask	Qu'Appelle R./Lumsden to bdry.	Skinner's Marsh; Valeport Marsh
4.26	Sask	Cutknife Plain	End Lake; Flat Lake; Thackeray Lake
4.27	Sask	Cutknife Hills	Grill Lake
4.28	Sask	Eagle Hills	Kimoff Lake; Kingsland Slough
4.30	Sask	South Saskatchewan R. Plain	Blucher Lake; Cheviot-Crawford Lakes; Pelican Lake
4.31	Sask	Dundurn Sandhills	Proctor Lake
4.35	Sask	Colonsay Plain	Buffalo Lake
4.39	Sask	Melfort Plain	Waterhen Lake
4.40	Sask	Tiger Hills Upland	Basin Lake
4.41	Sask	Ponass Lakes Plain	Houghton Lake; Lenore Lake; Ponass Lake
4.42	Sask	Lanigan Creek Plain	Humboldt Lake; Jansen Lake
4.43	Sask	Quill Lakes Basin	Big Quill Lake; Little Quill Lake
4.60	Man	Lake Souris Plain	Oak/Plum Lakes
4.79	Man	Delta Marshes	Delta Marsh; Lake Francis
4.81	Man	Shoal Lakes Plain	Shoal Lakes
4.83	Man	Lower Red River Plain	Oak Hammock Marsh
7.04	Alta	Wetaskiwin Plain	Bearhills Lake; Samson Lake
7.05	Alta	Bashaw Upland	Red Deer Lake
7.07	Alta	Cooking Lake Upland	Big Hay Lake; Joseph/Oliver Lakes; Miquelon Lake
7.10	Alta	Whitford Plain	Whitford/Rush Lakes
7.11	Alta	Myrnam Upland	Plain Lake
7.20	Sask	Barrier River Upland	Kitako Lake
7.26	Man	Riding Mountain Upland	Erickson Hills /area
7.31	Man	Crane River Plain	Spence Lake; S. Sagemace Bay
7.32	Man	Interlake Plain	Dog Lake
8.04	Alta	Lac Ste Anne Plain	Brock Lake
8.10	Alta	Redwater Plain	Lebeaus Lake
8.11	Alta	Thorhild Plain	Cache Lake; Smoky Lake
8.14	Alta	Whitefish Upland	Bunder Lake
8.15	Alta	Saddle Lake Plain	Lower Therien Lake
8.18	Alta	Beaver River Plain	Harold Lake; Jessie Lake; Stebbing Lake
8.21	Alta	Missawawi Lake Plain	Rich Lake
8.23	Alta	Lawrence Lake Plain	Dapp Lake
8.28	Alta	Horse River Plain	Algar Lake
8.38	Alta	Falher Plain	Lac Magloire
8.77	Alta	Zama Lake Plain	Hay-Zama Lakes

Table 7a. (continued...3) Sites of local importance for moulting ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
8.87	Sask	Paddockwood Plain	Cheal/Russell Lakes
18.05	Man	Cape Churchill Beaches	Entire Subregion
20.05	S-M	Upper Saskatchewan Delta	Bloodsucker Lake; Egg Lake; N. McGregor Lake; Wapisew Lake
20.15	Man	Waterhen Lake Plain	Kawinaw Lake
20.16	Man	Lake St. Martin Lowland	Lake St. Martin

Table 8. Sites and habitat subregions - staging ducks.

Unit No.	Prov	Area (km^2)	Rank*	Habitat subregion	Wetland site(s)
2.13	S-A	7961	***	Bigstick Lake Plain	MANY ISLAND LAKE
2.212	Sask	568	***	Eagle Cr./Scott-Zealandia	OPUNTIA LAKE
2.302	Sask	387	***	Last Mountain Lake	LAST MTN. LK. /NORTH
2.33	A-S	7702	***	Oyen Upland	MARENGO SLOUGH
2.76	Man	2703	***	Boissevain-Hartney Plain	WHITEWATER LAKE
4.07	Alta	3964	***	Castor Plain	ERSKINE LAKE
4.07	"	"	***	Castor Plain	EWING LAKE
4.16	Alta	4068	***	Innisfree Plain	KENILWORTH LAKE
4.18	Alta	5175	***	Killam Plain	WAVY LAKE
4.20	Alta	2853	***	Beaverhill Lake Plain	BEAVERHILL LAKE
4.23	Sask	5779	***	N. Saskatchewan River Plain	RADISSON LAKE
4.39	Sask	2991	***	Melfort Plain	WATERHEN MARSH
4.41	Sask	8299	***	Ponass Lakes Plain	FOAM LAKE
4.41	"	"	***	Ponass Lakes Plain	LENORE LAKE
4.43	Sask	1755	***	Quill Lakes Basin	LITTLE QUILL LAKE
4.60	Man	2786	***	Lake Souris Plain	OAK/PLUM LAKES
4.81	Man	2757	***	Shoal Lakes Plain	SHOAL LAKES
4.83	Man	2853	***	Lower Red River Plain	OAK HAMMOCK MARSH
7.03	Alta	691	***	Buffalo Lake Plain	BUFFALO LAKE
7.04	Alta	3694	***	Wetaskiwin Plain	BEARHILLS LAKE
7.07	Alta	2277	***	Cooking Lake Upland	BIG HAY LAKE
7.08	Alta	4627	***	Lake Edmonton Plain	MANAWAN LAKE
7.10	Alta	1331	***	Whitford Plain	WHITFORD/RUSH LAKES
7.10	"	"	***	Whitford Plain	VERMILION LAKES
8.11	Alta	3059	***	Thorhild Plain	SMOKY LAKE
8.14	Alta	2980	***	Whitefish Upland	MCCULLOUGH LAKE
8.15	Alta	762	***	Saddle Lake Plain	LAC BROSSEAU
8.18	Alta	2963	***	Beaver River Plain	FORSYTH LAKE
8.18	"	"	***	Beaver River Plain	MANATOKAN LAKE
8.22	Alta	3605	***	La Biche Plain	FLAT LAKE
8.32	Alta	3886	***	Utikuma Plain	UTIKUMA LAKE
8.32	"	"	***	Utikuma Plain	UTIKUMASIS LAKE
8.36	Alta	1724	***	Winagami Lake Plain	KIMIWAN LAKE
8.38	Alta	2534	***	Falher Plain	LAC MAGLOIRE
8.43	Alta	1431	***	Clairmount Plain	BEAR LAKE
8.43	"	"	***	Clairmount Plain	BUFFALO LAKE
8.46	Alta	3200	***	Cardinal Lake Plain	CARDINAL LAKE
8.69	Alta	5587	***	Peace-Athabasca Delta	P.A. DELTA
8.77	Alta	2355	***	Zama Lake Plain	HAY-ZAMA LAKES
9.25	Alta	3819	***	Sturgeon Lake Plain	STURGEON LAKE
9.28	Alta	3133	***	Beaverlodge Plain	LA GLACE LAKE
9.28	"	"	***	Beaverlodge Plain	SINCLAIR LAKE
9.28	"	"	***	Beaverlodge Plain	VALHALLA LAKE
20.05	S-M	6134	***	Upper Saskatchewan Delta	KENNEDY / BOURASSA LAKES

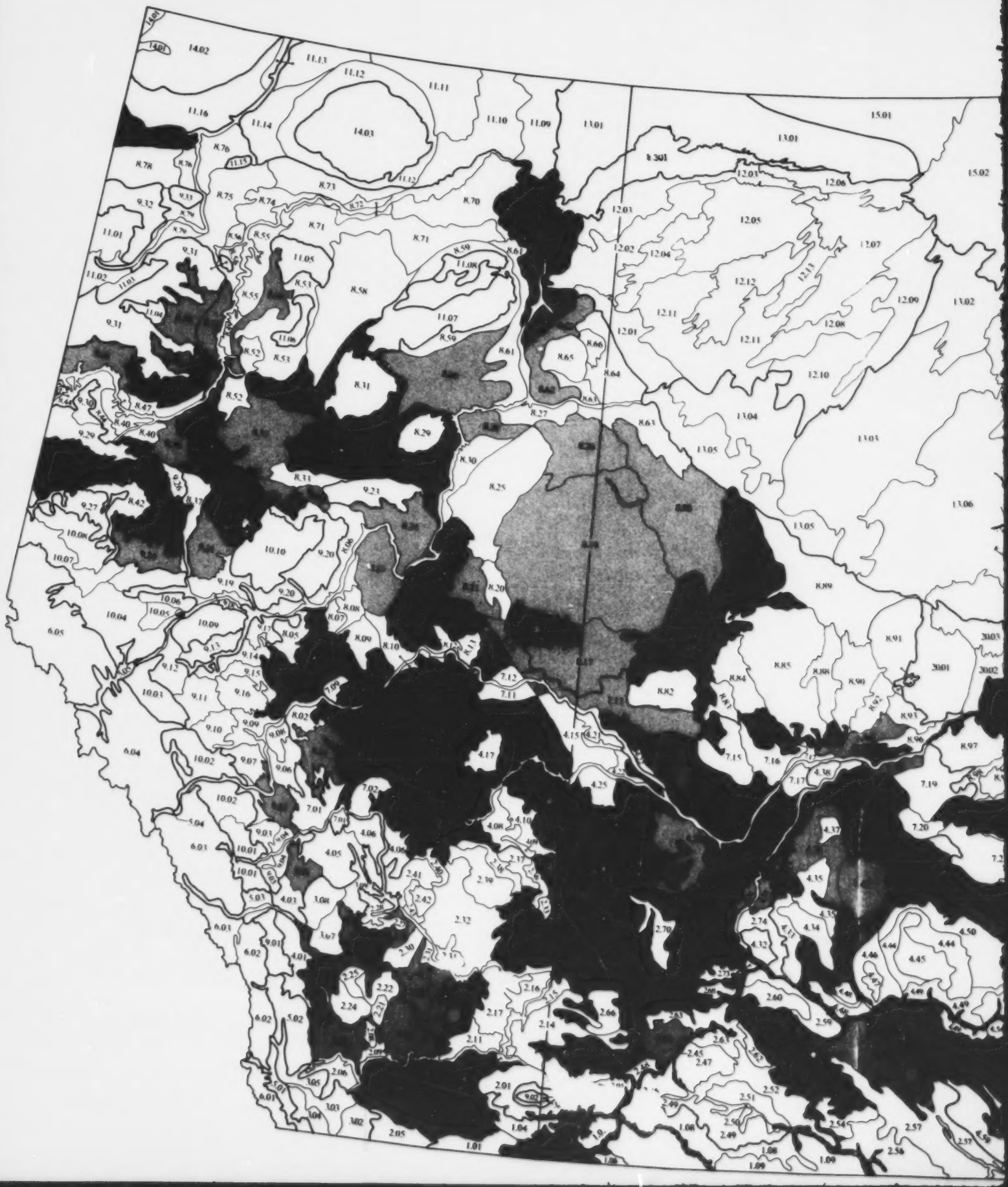


Fig. 5 Duck staging habitats

Table 8. (continued...2) Sites and habitat subregions - staging ducks.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
20.05	S-M	"	***	Upper Saskatchewan Delta	SASKERAM MARSHES
20.06	M-S	6022	***	Overflowing River Lowland	LEAF LAKE
1.03	Alta	687	**	Pakowki Plain	PAKOWKI LAKE
2.02	Alta	5992	**	Chin Plain	40-MILE COULEE
2.03	Alta	3305	**	Fincastle Plain	YELLOW LAKE
2.13	S-A	7961	**	Bigstick Lake Plain	CRANE LAKE
2.18	Alta	2521	**	Kininvie Plain	LOUISIANA LAKES
2.208	Sask	978	**	S. Sask R./Red Deer R. to Lk. Dief.	CABRI LAKE
2.210	Sask	1312	**	Qu'Appelle R./Lk. Dief. to Lumdsen	BUFFALO POUND LAKE
2.210	"	"	**	Qu'Appelle R./Lk. Dief. to Lumsden	NICOLLE FLATS
2.210	"	"	**	Qu'Appelle R./Lk. Dief. to Lumsden	PAYSEN LAKE
2.210	"	"	**	Qu'Appelle R./Lk. Dief. to Lumsden	PELICAN LAKE
2.212	Sask	568	**	Eagle Cr./Scott-Zealandia	TRAMPING LAKE
2.26	Alta	1374	**	Crowfoot Plain	NAMAKA LAKE
2.301	Sask	1431	**	Lake Diefenbaker	LAKE DIEFENBAKER
2.302	Sask	387	**	Last Mountain Lake	LAST MTN. LAKE / CENTRAL
2.33	A-S	7702	**	Oyen Upland	GREGORSON'S LAKE
2.33	"	"	**	Oyen Upland	TEO LAKES
2.34	S-A	3331	**	Sibbald Plain	CROOKSHANK'S LAKE
2.34	"	"	**	Sibbald Plain	DEWAR LAKE
2.34	"	"	**	Sibbald Plain	HERRICK LOW LAKE
2.34	"	"	**	Sibbald Plain	MERID SLOUGH
2.34	"	"	**	Sibbald Plain	N.E. STEELE'S LAKE
2.35	S-A	1706	**	Neutral Upland	LOVERNA SLOUGHS
2.35	"	"	**	Neutral Upland	SLOUGHS N. OF COURT
2.45	Sask	1358	**	Swift Current Creek Valley	REED LAKE
2.55	Sask	5832	**	Missouri Coteau	SCOTTIE LAKE
2.61	Sask	1699	**	Old Wives Lake Basin	CHAPLIN LAKE
2.65	Sask	721	**	Bigstick Lake Sandhills	BIGSTICK LAKE
2.67	Sask	639	**	Mantario Plain	MANTARIO SLOUGH
2.68	Sask	5771	**	Kindersley Plain	BROCK SLOUGH
2.68	"	"	**	Kindersley Plain	CUTBANK LAKE
2.68	"	"	**	Kindersley Plain	TEO LAKE /NORTH
2.69	Sask	2427	**	Tramping Lake Plain	BALIOL SLOUGH
2.69	"	"	**	Tramping Lake Plain	DENZIL SLOUGH
2.69	"	"	**	Tramping Lake Plain	GRASSY LAKE
2.69	"	"	**	Tramping Lake Plain	MUDDY LAKE

Table 8. (continued...3) Sites and habitat subregions - staging ducks.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
2.71	Sask	6528	**	Eagle Creek Plain	BARBER LAKE
2.71	"	"	**	Eagle Creek Plain	GOOSE LAKE
2.71	"	"	**	Eagle Creek Plain	MILDEN LAKE
2.72	Sask	3329	**	Coteau Hills	STOCKWELL LAKE
2.75	Sask	4740	**	Upper Qu'Appelle Plain	AXE LAKE
2.75	"	"	**	Upper Qu'Appelle Plain	BANK LAKE
2.75	"	"	**	Upper Qu'Appelle Plain	BOULDER LAKE
2.75	"	"	**	Upper Qu'Appelle Plain	KUTAWAGAN LAKE
2.75	"	"	**	Upper Qu'Appelle Plain	STALWART MARSH
3.06	Alta	2390	**	Frank Lake Plain	FRANK LAKE
4.08	Alta	2512	**	Battle River Upland	BELLSHILL LAKE
4.11	A-S	1843	**	Dilberry Plain	RIBSTONE LAKE
4.12	A-S	2734	**	Provost Upland	CACTUS LAKE
4.12	"	"	**	Provost Upland	HALLAM LAKE
4.13	A-S	2213	**	Edgerton Plain	MANITOU LAKE
4.13	"	"	**	Edgerton Plain	SEAGRAM LAKES
4.14	Alta	2620	**	Vermilion Upland	CLARKE LAKE
4.19	Alta	1698	**	Mundare Plain	BENS/WATT LAKES
4.20	Alta	2853	**	Beaverhill Lake Plain	BITTERN LAKE
4.206	Sask	1986	**	Qu'Appelle R./Lumsden to bdry.	VALEPORT MARSH
4.23	Sask	5779	**	N. Saskatchewan River Plain	JACKFISH LAKE
4.23	"	"	**	N. Saskatchewan River Plain	RICHARD MARSH
4.24	Sask	5134	**	Redberry Lake Upland	WHITEHILL LAKES
4.26	Sask	3507	**	Cutknife Plain	EAGLEHILL LAKE
4.26	"	"	**	Cutknife Plain	FLAT LAKE
4.26	"	"	**	Cutknife Plain	LITTLE TRAMPING LAKE
4.26	"	"	**	Cutknife Plain	THACKERAY LAKE
4.27	Sask	1570	**	Cutknife Hills	EAR LAKE
4.29	Sask	1236	**	Whiteshore Lake Plain	SPRINGWATER LAKE
4.30	Sask	7509	**	S. Saskatchewan River Plain	DUCK LAKE
4.39	Sask	2991	**	Melfort Plain	MELFORT SLOUGH
4.39	"	"	**	Melfort Plain	STINKING LAKES
4.39	Sask	2991	**	Melfort Plain	"AIRPORT" SLOUGH
4.40	Sask	1905	**	Tiger Hills Upland	BASIN LAKE
4.40	"	"	**	Tiger Hills Upland	MIDDLE LAKE
4.41	Sask	8299	**	Ponass Lakes Plain	PONASS LAKE
4.41	"	"	**	Ponass Lakes Plain	RANCH LAKE
4.41	"	"	**	Ponass Lakes Plain	SOUTH (FROG) LAKE
4.43	Sask	1755	**	Quill Lakes Basin	BIG QUILL LAKE
4.43	"	"	**	Quill Lakes Basin	MIDDLE QUILL LAKE
4.62	Man	7149	**	Newdale Plain	LIDCLIFF MARSH
4.78	Man	1575	**	Whitemud River Plain	BIG GRASS MARSH
4.79	Man	372	**	Delta Marshes	DELTA MARSH

Table 8. (continued...4) Sites and habitat subregions - staging ducks.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
7.04	Alta	3694	**	Wetaskiwin Plain	SAMSON LAKE
7.05	Alta	912	**	Bashaw Upland	RED DEER LAKE
7.06	Alta	1806	**	Battle River Plain	"EDBERG" SLOUGH
7.07	Alta	2277	**	Cooking Lake Upland	COOKING LAKE
7.07	"	"	**	Cooking Lake Upland	HASTINGS LAKE
7.07	"	"	**	Cooking Lake Upland	JOSEPH/OLIVER LAKES
7.07	"	"	**	Cooking Lake Upland	MIQUELON LAKE
7.08	Alta	4627	**	Lake Edmonton Plain	BIG LAKE
7.14	Sask	1024	**	Witchekan Plain	WITCHEKAN LAKE
7.202	Alta	455	**	Battle R./Coal Lk. to Castor Cr.	COAL LAKE
7.202	"	"	**	Battle R./Coal Lk. to Castor Cr.	DRIEDMEAT LAKE
7.21	Sask	4138	**	Red Deer River Plain	HORSEHIDE LAKE
7.35	Man	306	**	Red River Delta	NETLEY MARSH
8.03	Alta	2660	**	Chip Lake Plain	CHIP LAKE
8.04	Alta	3831	**	Lac Ste Anne Plain	OLDMAN LAKE
8.14	Alta	2980	**	Whitefish Upland	BUNDER LAKE
8.30	Alta	8624	**	Wabasca Lake Plain	GODIN LAKE
8.30	"	"	**	Wabasca Lake Plain	WEAVER LAKE
8.302	Sask	483	**	Tobin Lake	TOBIN LAKE
8.34	Alta	2326	**	Lesser Slave Lake Plain	SUCKER CREEK
8.36	Alta	1724	**	Winagami Lake Plain	RAT/DUCK LAKES
8.36	"	"	**	Winagami Lake Plain	WINAGAMI LAKE
8.41	Alta	1978	**	Kleskun Plain	KLESKUN LAKE
8.43	Alta	1431	**	Clairmount Plain	CLAIRMONT LAKE
8.43	"	"	**	Clairmount Plain	FERGUSON LAKE
8.46	Alta	3200	**	Cardinal Lake Plain	GEORGE LAKE
8.57	Alta	5711	**	Lubicon Plain	CADOTTE LAKE
8.57	"	"	**	Lubicon Plain	LUBICON LAKE
8.67	Alta	4267	**	Embarras Plain	RONALD LAKE
8.68	Alta	190	**	Fort Hills	MCCLELLAND LAKE
8.81	Sask	17620	**	Beaver River Plain	MEADOW LAKE
8.81	"	"	**	Beaver River Plain	PAGAN LAKE
8.86	Sask	2212	**	Debden Plain	BERUBE LAKE
8.86	"	"	**	Debden Plain	STUMP LAKE
8.87	Sask	776	**	Paddockwood Plain	CHEAL/RUSSELL LAKES
8.95	Sask	927	**	La Corne Plain	GERTRUDE/CAMPBELL LAKES
9.22	Alta	2466	**	Snipe Lake Benchland	SNIPE LAKE
9.28	Alta	3133	**	Beaverlodge Plain	HORSE LAKES
9.28	"	"	**	Beaverlodge Plain	SASKATOON/LITTLE LAKES
20.05	S-M	6134	**	Upper Saskatchewan Delta	EGG LAKE

Table 8. (continued...5) Sites and habitat subregions - staging ducks.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
20.05	S-M	"	**	Upper Saskatchewan Delta	MCGREGOR LAKE
20.05	"	"	**	Upper Saskatchewan Delta	REDEARTH LAKE
20.05	S-M	"	**	Upper Saskatchewan Delta	READER LAKE
20.15	Man	9094	**	Waterhen Lake Plain	KAWINAW LAKE
20.19	Man	2623	**	Fisher River Plain	LAKE ST. ANDREW / GEORGE
20.20	Man	4567	**	Grindstone Point Lowland	HECLA-RIVERTON MARSHES
22.01	Man	8819	**	Red River Valley	GRANTS LAKE

+ *** = National importance
** = Regional importance

Table 8a. Sites of local importance for staging ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
1.02	S-A	Sage Creek Plain	Cutbank Lake
1.201	Sask	Frenchman River/Alta. to U.S.A.	Cypress Lake
2.02	Alta	Chin Plain	Chin Lakes; Crow Indian Flat; Crow Indian Lake; Etzikom Coulee; Legend Coulee; Sherburne Lake
2.03	Alta	Fincastle Plain	Chin Lakes; N. Coaldale Reservoir; Fincastle Lake; Horsefly Lake/Reservoir; Stirling Lake
2.04	Alta	Verdigris Plain	Rush Lake; Tyrrell Lake; Weston Lake; unnamed wetland
2.07	Alta	Keho Lake Plain	Clear Lake; Keho Lake
2.10	Alta	Enchant Plain	S.E. Badland Hills Lake; Hays Reservoir; Lonesome Lake; Lost Lake
2.13	S-A	Bigstick Lake Plain	Junction Reservoir; Sam Lake; Tenaille Lake
2.18	Alta	Kininvie Plain	Cowoki Lake; Kininvie Flats; Minor Lake; Scots Lake; Tilley Slough; Timko Lake
2.19	Alta	Matzhiwin Plain	Stafford Lake
2.20	Alta	Lake Newell Plain	Canal Lake; Kitsim Lake; Lake Newell; San Francisco Lake; N. San Francisco Lake; Rock Lake; Spring Hill Canal Lake
2.202	Alta	Little Bow R./Mosquito Ck. to Oldman R.	Travers Reservoir
2.203	Alta	Bow R./Calgary to Bassano	Bassano Reservoir
2.204	Alta	Bow R./Bassano to mouth	Scope Reservoir
2.210	Sask	Qu'Appelle R./Lk. Dief. to Lumsden	Eyebrow Lake; Kettlehut Lake
2.23	Alta	Blackfoot Plain	McGregor Lake
2.26	Alta	Crowfoot Plain	San Joaquin Lake
2.29	Alta	Deadhorse Lake Upland	Seiu Lake
2.301	Sask	Lake Diefenbaker	Sask. Landing/Cabri
2.33	A-S	Oyen Upland	Laporte Lake; "Stoney Vista"
2.34	S-A	Sibbald Plain	Beaufield Marsh; Coleville Slough; N.W. Dewar Lake; Elemer Lake; Eyre Lake; Kissick Slough; Kiyiu Lake; N.W. Smiley Dam; Schmidt's Slough; Steele's Lake; Street Lake; White Heron Lake

Table 8a. (continued...2) Sites of local importance for staging ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
2.53	Sask	Willow Bunch-Big Muddy Valley	Big Muddy Lake; Lake of the Rivers
2.58	Sask	Regina Plain	Buck Lake; Condie Reservoir; Tatagwa Lake
2.61	Sask	Old Wives Lake Basin	Old Wives Lake
2.64	Sask	Antelope Lake Plain	Antelope Lake
2.67	Sask	Mantario Plain	Red Top Slough
2.68	Sask	Kindersley Plain	Lozinsky Slough; Snipe Lake
2.69	Sask	Tramping Lake Plain	Shallow Lake
2.71	Sask	Eagle Creek Plain	Catherwood Slough; Van Scoy Lake
2.72	Sask	Coteau Hills	Anerly Lakes; Luck Lake
2.75	Sask	Upper Qu'Appelle Plain	Bank Lake
2.76	Man	Boissevain-Hartney Plain	Chain Lakes
4.02	Alta	Strathmore Plain	Irricana Reservoir; Irricana Slough
4.04	Alta	Dogpound Benchland	Hicklon Lake
4.12	A-S	Provost Upland	Cactus Lake; Macklin Lake; "Hearts Hill" Sloughs
4.16	Alta	Innisfree Plain	Akasu Lake; Lac Emilien; Sandy Lake
4.20	Alta	Beaverhill Lake Plain	Demay Lake, Dusty Lake
4.211	Man	Pembina R./Ninette to bdry.	Louise Lake; Rock Lake; Swan Lake
4.24	Sask	Redberry Lake Upland	Redberry Lake; Scentgrass Lake
4.26	Sask	Cutknife Plain	Coldspring Lake; End Lake; Killsquaw Lake
4.28	Sask	Eagle Hills	Kimoff Lake
4.30	Sask	S. Saskatchewan River Plain	Rice Lake
4.31	Sask	Dundurn Sandhills	Proctor Lake
4.36	Sask	Minichinas Hills Upland	Wakaw Lake
4.40	Sask	Tiger Hills Upland	Fox Lake; Hudson Lake; Jumping Lakes; Tway Lake
4.41	Sask	Ponass Lakes Plain	Charron/Edouard Lakes; Houghton Lake; Knutson Lake; "Canola Project"
4.42	Sask	Lanigan Creek Plain	Jansen Lake
4.51	Sask	Whitesand River Plain	"Fulton Flats"
4.52	Sask	Yorkton Plain	Yorkton Lakes
4.55	Sask	Moose Mountain Upland	Chapleau Lakes; Deep Lake; Gooseberry Lake
4.60	Man	Lake Souris Plain	Maple/Hunter Lakes
4.62	Man	Newdale Plain	Shoal Lake

Table 8a. (continued...3) Sites of local importance for staging ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
4.63	Man	Rackham Hills	Pleasant Valley Reservoir
4.65	Man	Brandon Lakes Plain	"Alexander-Griswold" Marsh
4.77	Man	Westlake Till Plain	Big Point; Lonely Lake; Methley Marshes
4.79	Man	Delta Marshes	Lake Francis
4.81	Man	Shoal Lakes Plain	Marshy Point
4.83	Man	Lower Red River Plain	"Ft. White Centre"
7.04	Alta	Wetaskiwin Plain	Little Red Deer Marsh
7.06	Alta	Battle River Plain	Ferintosh Lakes
7.07	Alta	Cooking Lake Upland	Big Island Lake; Bretona Pond
7.13	S-A	Thickwood Hills	Maiden Lake
7.18	Sask	Nipawin Plain	"Bergerin Project"
7.202	Alta	Battle R./Coal Lk. to Castor Cr.	Coal Lake
7.21	Sask	Red Deer River Plain	Bjork Lake
7.26	Man	Riding Mountain Upland	Sandy Lake
7.30	Man	Dauphin Lake Plain	Dauphin Lake
7.31	Man	Crane River Plain	Reykjavik Point; S. Sagemace Bay; Spence Lake
7.32	Man	Interlake Plain	Chatfield area; Dennis-Russell Lakes; Dog Lake; Lake Manitoba Narrows; Long Island Bay; Oak Island Marsh; Peonan Point; Pineimuta Lake/Marsh; Portage Bay; Watchhorn Bay
8.01	Alta	Pigeon Lake Upland	Pigeon Lake
8.04	Alta	Lac Ste Anne Plain	Isle Lake; Lac la Nonne; Lac Ste Anne; Majeau Lake; Oldman Lake; Sandy Lake; Wabamun Lake
8.14	Alta	Whitefish Upland	Cache Lake; Carroll Lakes
8.15	Alta	Saddle Lake Plain	Camp Lake; Duck Lake; Lac Cyr; Lac Sante; N.W. Lower Therien Lake; Upper Therien Lake
8.16	Alta	Yelling Creek Plain	Grassy Island Lake
8.17	S-A	Cold Lake Hills	Landry Lake; Sinking Lake
8.18	Alta	Beaver River Plain	Berricki Lake; Charlotte Lake; Edward Lake; Jessie Lake; Harold Lake; Maloney Lake; Osborne Lake; Stebbing Lake
8.19	A-S	Moostoos Upland	Tucker Lake

Table 8a. (continued...4) Sites of local importance for staging ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
8.21	Alta	Missawawi Lake Plain	Huppie Lake; Lac la Biche; Little Beaver Lake; Missawawi Lake; Rich Lake
8.23	Alta	Lawrence Lake Plain	Lawrence Lake
8.24	Alta	Calling Lake Plain	Calling Lake; Fawcett Lake; Howard Lake; Orloff Lake; Otter Lake; Rock Island Lake
8.26	A-S	Garson Plain	Gordon Lake
8.28	Alta	Horse River Plain	Algar Lake
8.303	Alta	Lesser Slave Lake	Lesser Slave Lake
8.32	Alta	Utikuma Plain	Nipisi Lake; S. Sawle Lake
8.35	Alta	Heart River Upland	Gift Lake
8.36	Alta	Winagami Lake Plain	Buffalo Bay/Horse Lake; N.E. of Jean Cote
8.39	Alta	Watino Plain	Egg Lake
8.41	Alta	Kleskun Plain	Kakut Lake
8.43	Alta	Clairmount Plain	Dimsdale Lake
8.45	Alta	Worsley Plain	Boundary Lake
8.46	Alta	Cardinal Lake Plain	Black Duck Lake; Gerry Lake; Flood Lake; George Lake; Last Lake; Leddy-St. Germain Lake; N. Lake Germain; "Brownvale" Sloughs; "Fairview" Sloughs
8.48	Alta	Whitemud Plain	Helen Lake; Pluvius Lake
8.50	Alta	Notekevin River Plain	Deadwood Lake
8.51	Alta	Manning Plain	Nina Lake
8.54	Alta	Bison Lake Plain	Bison Lake
8.57	Alta	Lubicon Plain	Cadotte Lake; Little Buffalo Lake; Loon Lake; Martin Lake; Muskwa Lake
8.60	Alta	Chipewyan River Plain	W. Muskeg Lake
8.62	Alta	Steepbank River Plain	Kearl Lake
8.67	Alta	Embarras Plain	Audet Lake; Square Lake
8.80	Sask	Ile a la Crosse Lowland	Beauval Marsh; Kazan Lake
8.81	Sask	Beaver River Plain	St. Cyr Lake; "Oliver Project"
8.86	Sask	Debden Plain	Keg Lake
8.94	Sask	Smeaton-Weirdale Plain	Dunlop/Gorman/Old Lakes
9.21	Alta	Iosegun Plain	Iosegun Lake; Meekwap Lake
9.24	Alta	Simonette Benchland	N.W. Smoke Lake
9.28	Alta	Beaverlodge Plain	Anderson Lake; Cutbank Lake; Deep Lake; Goodfare Lake; S.W. Goodfare Lake; Martin Lake; McNeill Lake; Preston Lake; Wolfe Lake

Table 8a. (continued...5) Sites of local importance for staging ducks.

Unit No.	Prov	Habitat subregion	Wetland site(s)
18.01	Man	Rupert Creek Lowland	Entire Subregion
18.05	Man	Cape Churchill Beaches	Entire Subregion
20.04	M-S	Namew Lake Plain	Cumberland Lake
20.05	S-M	Upper Saskatchewan Delta	Bewley Lake; Big Lake; Birch Lake; Bloodsucker Lake; Egg Lake; Nisku Lake; Meadow Lake; N. McGregor Lake; Pasquia Lake; Wapisew Lake
20.08	Man	Summerberry Lowland	Kelsey Lake; Little Kelsey Lake; Summerberry Marshes
20.09	Man	Moose Lake Plain	Moose Lake (west shore)
20.12	Man	Winnipegosis Plain	Sagemace Bay; Swan Lake
20.16	Man	Lake St. Martin Lowland	Lake St. Martin
20.19	Man	Fisher River Plain	Roy Lake (N. of Fisher Branch)
21.04	Man	Whiteshell River Plain	Big Whiteshell Lake; Brant Lake; Crowduck Lake; Heart Lake; Lone Island Lake; Lower Whiteshell Lake; Mallard Lake; Marchand Lake; Middleton Lake; Rice Lake; Sutcliffe Lake; Swamp Lake; War Eagle Lake; "Alf-Hole Goose Sanctuary"; "Point du Bois Refuge"

highest population from 1968 to 1980 (Cooke *et al.* 1982). Also, subregion 18.01, Rupert Creek Lowland, is of national importance for mixed populations of breeding Canada and Snow geese.

Overall, 74 habitat subregions of the Prairie provinces have concentrations of breeding geese (**Figure 6** and **Tables 9, 9a**). Almost all important subregions are in the south-central area Prairie-wide.

4.5 Goose Moulting

Moulting sites used by Canada Geese that breed in the Prairie provinces are not well known (Canadian Wildlife Service 1979). Yearling and subadult non-breeding Canada Geese are suspected to moult in the Northwest Territories (Bellrose 1976). They are possibly followed north by failed breeders; but geese that raise young subsequently moult on breeding marshes throughout the Prairie provinces.

Twenty-three locally important sites have notable concentrations of moulting Canada Geese (**Table 10**). Most of these sites are in areas of large breeding populations.

4.6 Goose Staging

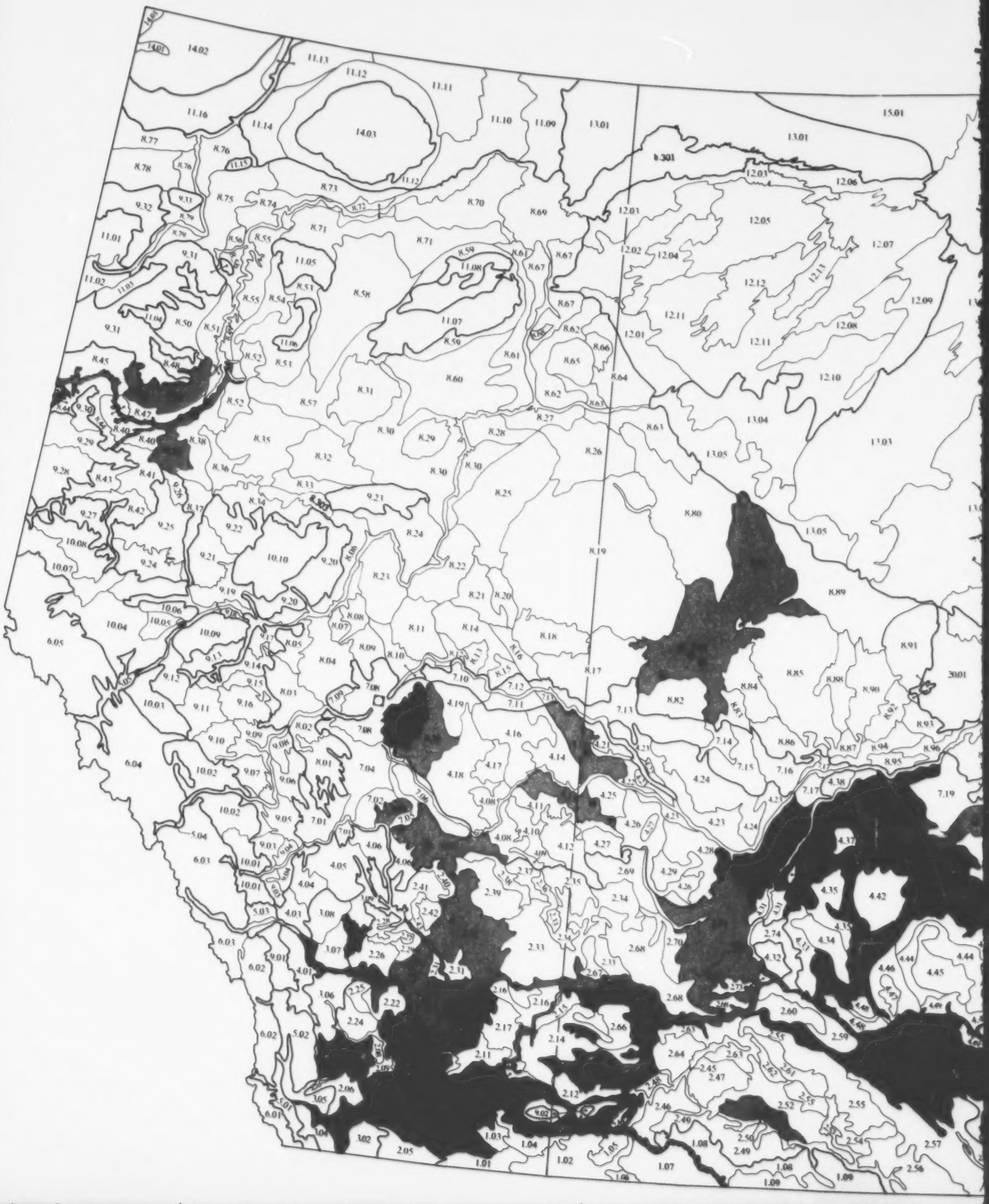
Several million northern-nesting Canada, Lesser Snow, Ross' and Greater White-fronted Geese stage during their spring and fall migrations in the Prairie provinces, particularly in the grasslands and parklands. These birds require secure waterbodies for roosting, and adequate feeding areas which are usually on nearby agricultural lands.

The *Canada Goose*, totalling approximately 1 million birds, stages in the southern Prairies. Population estimates for this species (and its distinct races) are made difficult by its dispersed breeding habitat, and by "mixing" with birds from other areas during migration and when on the wintering grounds.

Most of the world's *Lesser Snow Goose* population stages in the Prairie provinces during spring and fall migrations. The total continental breeding population for this species exceeds 1.8 million birds - based in large part on aerial photography of the nesting grounds (R. Kerbes, CWS, *pers. comm.*). Results of these population counts and trends are:

Area	Breeding birds	Population trend	Date of count
Wrangel Island	50 000	declining	1989 estimate
Western Arctic	205 000	stable	1987
Central Arctic	275 000	increasing	1988
Eastern Arctic:			
- Southampton/Baffin	688 000	stable	1979
- Ontario	200 000	increasing	1989 estimate
- West Hudson Bay	436 000	stable	1985
Total:	1 854 000		

Fall flights can exceed breeding numbers by two to three times, particularly in years of good nesting success. Traditional Snow Goose staging areas in the Prairie



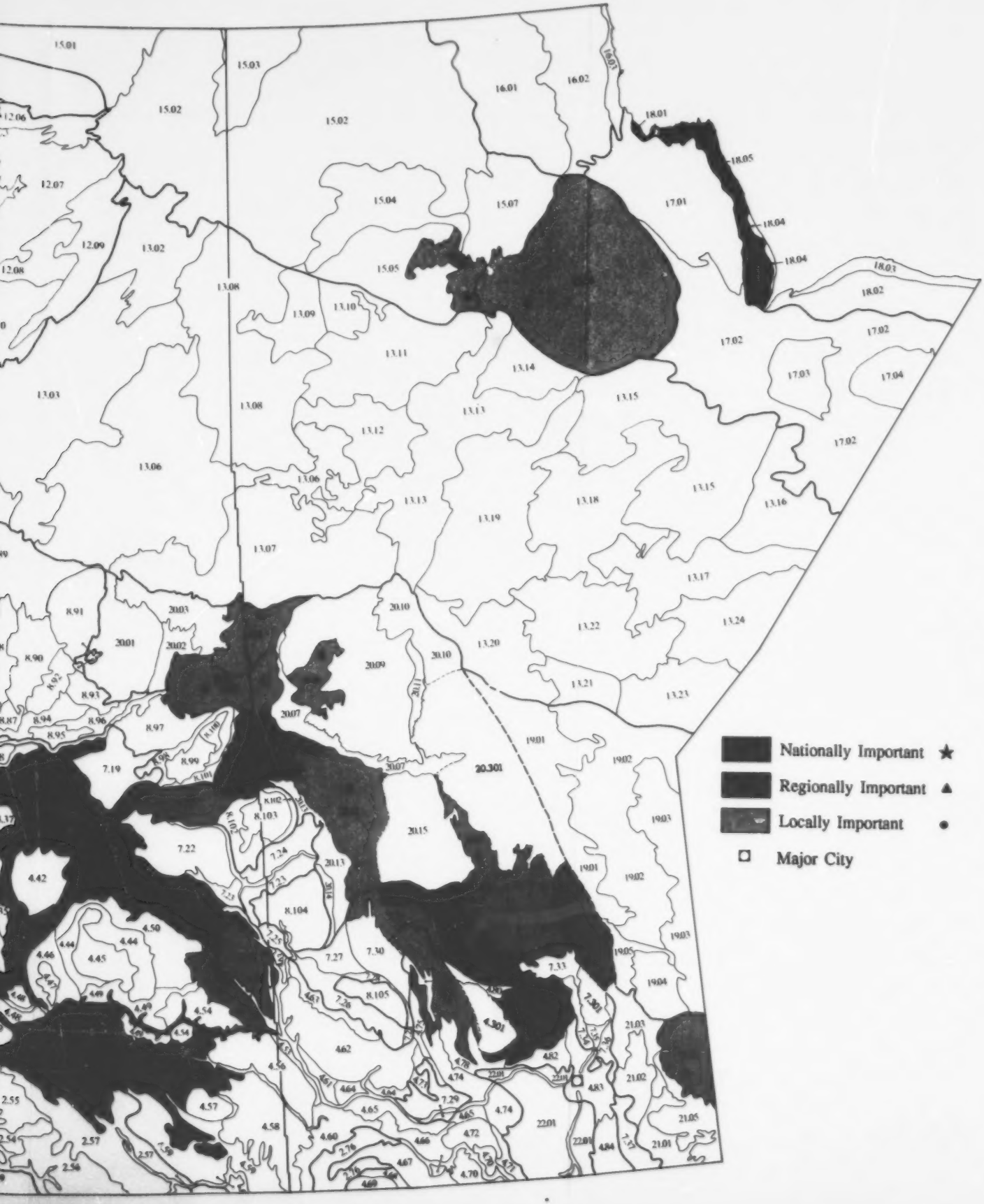


Fig. 6 Goose breeding habitats

Table 9. Habitat subregions and sites - breeding geese.

Unit No.	Prov	Area (km²)	Rank+	Habitat subregion	Wetland site(s)
18.01	Man	3858	***	Rupert Creek Lowland	ENTIRE SUBREGION
18.05	Man	908	***	Cape Churchill Beaches	LA PEROUSE BAY /SOUTH
2.01	S-A	4668	**	Cypress Hills Benchland	CAVAN LAKE
2.02	Alta	5992	**	Chin Plain	MURRAY LAKE
2.03	Alta	3305	**	Fincastle Plain	FINCASTLE LAKE
2.03	"	"	**	Fincastle Plain	GRASSY LAKE
2.03	"	"	**	Fincastle Plain	TABER LAKE
2.04	Alta	2209	**	Verdigris Plain	MILK RIVER RIDGE RES.
2.07	Alta	2539	**	Keho Lake Plain	KEHO LAKE
2.10	Alta	2889	**	Enchant Plain	HAYS RESERVOIR
2.10	"	"	**	Enchant Plain	SCOPE RESERVOIR
2.13	S-A	7961	**	Bigstick Lake Plain	CRANE LAKE
2.18	Alta	2521	**	Kininvie Plain	COWOKI LAKE
2.18	"	"	**	Kininvie Plain	KININVIE FLATS
2.21	Alta	409	**	Lomond Upland	LITTLE BOW LAKE RES.
2.210	Sask	1312	**	Qu'Appelle R./Lk. Dief. to Lumsden	EYEBROW LAKE
2.203	Alta	775	**	Bow R./ Calgary to Bassano	BOW R./CALGARY-HAYS
2.58	Sask	7992	**	Regina Plain	WASCANA LAKE /AREA
2.75	Sask	4740	**	Upper Qu'Appelle Plain	KUTAWAGAN LAKE
2.75	"	"	**	Upper Qu'Appelle Plain	STALWART MARSH
3.03	Alta	1651	**	St. Mary Plain	ST. MARY RESERVOIR
4.02	Alta	718	**	Strathmore Plain	"IRRICANA PROJECT"
4.206	Sask	1986	**	Qu'Appelle R./Lumsden to bdry.	VALEPORT MARSH
4.30	Sask	7509	**	S. Saskatchewan River Plain	PELICAN LAKE
4.36	Sask	3741	**	Minichinas Hills Upland	WAKAW LAKE
4.39	Sask	2991	**	Melfort Plain	WATERHEN MARSH
4.41	Sask	8299	**	Ponass Lakes Plain	LENORE LAKE
4.43	Sask	1755	**	Quill Lakes Basin	LITTLE QUILL LAKE
4.43	"	"	**	Quill Lakes Basin	MIDDLE QUILL LAKE
4.51	Sask	3387	**	Whitesand River Plain	HORSESHOE LK./MARSH
4.55	Sask	10758	**	Moose Mountain Upland	CHAPLEAU LAKES
4.81	Man	2757	**	Shoal Lakes Plain	SHOAL LAKES
7.07	Alta	2277	**	Cooking Lake Upland	MIQUELON LAKE EAST
7.18	Sask	781	**	Nipawin Plain	"BERGERIN PROJECT"
7.32	Man	7694	**	Interlake Plain	DOG LAKE/MARSHY PT.
7.32	"	"	**	Interlake Plain	MOOSEHORN LAKE
20.06	M-S	6022	**	Overflowing River Lowland	LEAF LAKE
20.20	Man	4567	**	Grindstone Point Lowland	HECLA-RIVERTON MARSHES

+ *** = National importance
** = Regional importance

Table 9a. Sites of local importance for breeding geese.

Unit No.	Prov	Habitat subregion	Wetland site(s)
1.201	Sask	Frenchman River/Alta. to U.S.A.	Cypress Lake; Newton Lake
2.02	Alta	Chin Plain	Rattlesnake Lake; Seven Persons Lake
2.03	Alta	Fincastle Plain	C.P.R. Reservoir
2.10	Alta	Enchant Plain	Badger Lake; Wetland (S35-T12-R13-M4); Wetland (T13-R15-M4)
2.13	S-A	Bigstick Lake Plain	Junction Reservoir
2.18	Alta	Kininvie Plain	Bantry Reservoir; Scots Lake
2.19	Alta	Matzhiwin Plain	12-Mile Coulee
2.20	Alta	Lake Newell Plain	San Francisco Lake
2.201	Alta	Oldman River	Oldman River
2.205	Alta	S. Sask. R./Bow R. to Red Deer R.	South Saskatchewan River
2.207	Alta	Red Deer R./Drumheller to S. Sask. R.	Red Deer River
2.208	Sask	S. Sask R./Red Deer R. to Lk. Dief.	Prelate to Lemsford /River
2.23	Alta	Blackfoot Plain	Stobart Lake
2.30	Alta	Crawling Valley Plain	Barkenhouse Lake
2.301	Sask	Lake Diefenbaker	Sask. Landing/Cabri
2.302	Sask	Last Mountain Lake	Last Mountain Lake (north, central, south)
2.32	Alta	Richdale-Cessford Plain	Coleman Lake
2.51	Sask	Lower Wood River Plain	Thomson Lake
2.65	Sask	Bigstick Lake Sandhills	Bigstick Lake
2.71	Sask	Eagle Creek Plain	Van Scoy Lake
2.72	Sask	Coteau Hills	Anerly Lakes
2.75	Sask	Upper Qu'Appelle Plain	Axe Lake
4.07	Alta	Castor Plain	Erskine Lake; Shooting Lake
4.13	A-S	Edgerton Plain	Manitou Lake; Seagram Lakes
4.15	S-A	Hazeldine Plain	Neale Lake
4.20	Alta	Beaverhill Lake Plain	Armena Area
4.39	Sask	Melfort Plain	Stinking Lakes
4.40	Sask	Tiger Hills Upland	Basin Lake; Jumping Lakes Middle Lake; Shannon/Van Lakes; Tway Lake
4.41	Sask	Ponass Lakes Plain	Charron/Edouard Lakes; Deadmoose Lake; Fishing Lake; Foam Lake; Houghton Lake; Mantrap/Flat Lakes; Ponass Lake; Ranch Lake; Saline Lake; "Kuroki Duck Factory"
4.43	Sask	Quill Lakes Basin	Big Quill Lake
4.51	Sask	Whitesand River Plain	Dog Lake; Ebel Lake; Good Spirit Lake

Table 9a. (continued...2) Sites of local importance for breeding geese.

Unit No.	Prov	Habitat subregion	Wetland site(s)
4.52	Sask	Yorkton Plain	Yorkton Lakes
4.55	Sask	Moose Mountain Upland	Redfox Lake; Strawberry Lakes
4.77	Man	Westlake Till Plain	Robertson Marsh
4.79	Man	Delta Marshes	Delta Marsh
4.81	Man	Shoal Lakes Plain	Marshy Point
7.03	Alta	Buffalo Lake Plain	Buffalo Lake
7.07	Alta	Cooking Lake Upland	Hastings Lake
7.20	Sask	Barrier River Upland	Kitako Lake; McPhail/Semple Lakes
7.21	Sask	Red Deer River Plain	Bjork Lake; Neely Lake
7.31	Man	Crane River Plain	Reykjavik Point
7.32	Man	Interlake Plain	Burnt Lake Complex; Chatfield Lake /Area; Dennis/Russell Lakes; Lake Manitoba Narrows; Oak Island Marsh; Pineimuta Lake/Marsh; Spruce/Oak Lakes
8.209	Alta	Peace R./Peace R. town to bdry.	Peace River
8.39	Alta	Watino Plain	Smoky River, W. of Marie-Reine
8.46	Alta	Cardinal Lake Plain	Black Duck Lake; George Lake
8.81	Sask	Beaver River Plain	Cassidy Lake; Pagan Lake; St. Cyr Lake; "Oliver Project"
15.06	Man	Partridge Breast Plain	Partridge Breast Lake
15.08	Man	Limestone River Plain	Northern Indian/Fidler Lakes
18.05	Man	Cape Churchill Beaches	Entire Subregion
20.04	M-S	Namew Lake Plain	Goose Lake
20.05	S-M	Upper Saskatchewan Delta	Big Lake; McGregor Lake; N. McGregor Lake; Wapisew Lake
20.05	S-M	Upper Saskatchewan Delta	Saskeram Marshes
20.08	Man	Summerberry Lowland	Mawdesley Lake Complex
20.12	Man	Winnipegosis Plain	Pelican Bay
20.16	Man	Lake St. Martin Lowland	Lake St. Martin
20.17	Man	Sturgeon Bay Lowland	St. Michael Lake; Sturgeon Bay
20.18	Man	Mantagao Lake Plain	Sleeve Lake
20.19	Man	Fisher River Plain	Fisher Bay; Lake St. Andrew/George; Lee Lake
21.04	Man	Whiteshell River Plain	"Alf-Hole Goose Sanctuary"

Table 10. Sites and habitat subregions - moulting geese.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
2.05	Alta	1600	*	Milk River Upland	"KNIGHT RANCH" RES.
2.13	S-A	7961	*	Bigstick Lake Plain	CRANE LAKE
2.58	Sask	7992	*	Regina Plain	WASCANA LAKE /AREA
3.02	Alta	1200	*	Del Bonita Plain	ROSS LAKE
4.23	Sask	5779	*	N. Saskatchewan River Plain	PADDLING LAKE
4.39	Sask	2991	*	Melfort Plain	WATERHEN MARSH
4.41	Sask	8299	*	Ponass Lakes Plain	FOAM LAKE
4.41	"	"	*	Ponass Lakes Plain	LENORE LAKE
4.41	"	"	*	Ponass Lakes Plain	PONASS LAKE
4.43	Sask	1755	*	Quill Lakes Basin	LITTLE QUILL LAKE
4.43	"	"	*	Quill Lakes Basin	MIDDLE QUILL LAKE
4.79	Man	372	*	Delta Marshes	DELTA MARSH
4.81	Man	2757	*	Shoal Lakes Plain	MARSHY POINT
4.81	"	"	*	Shoal Lakes Plain	SHOAL LAKES
7.32	Man	7694	*	Interlake Plain	CHATFIELD LAKE /AREA
7.32	"	"	*	Interlake Plain	DENNIS/RUSSELL LKS.
7.32	"	"	*	Interlake Plain	DOG LAKE
7.35	Man	306	*	Red River Delta	NETLEY MARSH
18.01	Man	3858	*	Rupert Creek Lowland	ENTIRE SUBREGION
18.05	Man	908	*	Cape Churchill Beaches	ENTIRE SUBREGION
20.05	S-M	6134	*	Upper Saskatchewan Delta	SASKERAM MARSHES
20.16	Man	1024	*	Lake St. Martin Lowland	LAKE ST. MARTIN
20.20	Man	4567	*	Grindstone Point Lowland	HECLA-RIVERTON MARSHES

+ * = Local importance

provinces include: Alberta's Peace-Athabasca Delta, the Hanna-Kindersley region of Alberta-Saskatchewan and southwestern Manitoba.

Changes in population size, weather, and habitat conditions during the past 10 years, collectively may have caused dramatic shifts of staging birds in the southern Prairies. For example, Snow Geese staging at the north end of Last Mountain Lake, Saskatchewan, have increased from fewer than 5000 birds in the late 1970s to 250 000 in 1989 (C. Jorgenson, CWS, *pers. comm.*). Also, in central Alberta, Snow Geese regularly observed at Beaverhill Lake apparently shifted to Lake Diefenbaker, a man-made reservoir in Saskatchewan (T. Barry, CWS, *pers. comm.*). An extensive goose-marking program currently underway will help determine whether changes are of a short-term or long-term nature.

The *Ross' Goose*, an Arctic-nesting species that traditionally stages in the Peace-Athabasca Delta and Hanna-Kindersley regions, has increased in numbers over the past 30 years, to over 175 000 breeding birds by 1988 (R. Kerbes, CWS, *pers. comm.*).

Similarly, the Mid-continent population of the *Greater White-fronted Goose* (of over 150 000 birds) stages primarily in the Hanna-Kindersley region (the "western" birds), through west-central Saskatchewan, and in southwestern Manitoba (the "eastern" birds). Current and proposed banding and marking programs will clarify staging distribution.

Recent indications are that the Greater White-fronted Goose may not be separable into subpopulations (as was traditionally believed).

Sites for staging geese are categorized as follows:

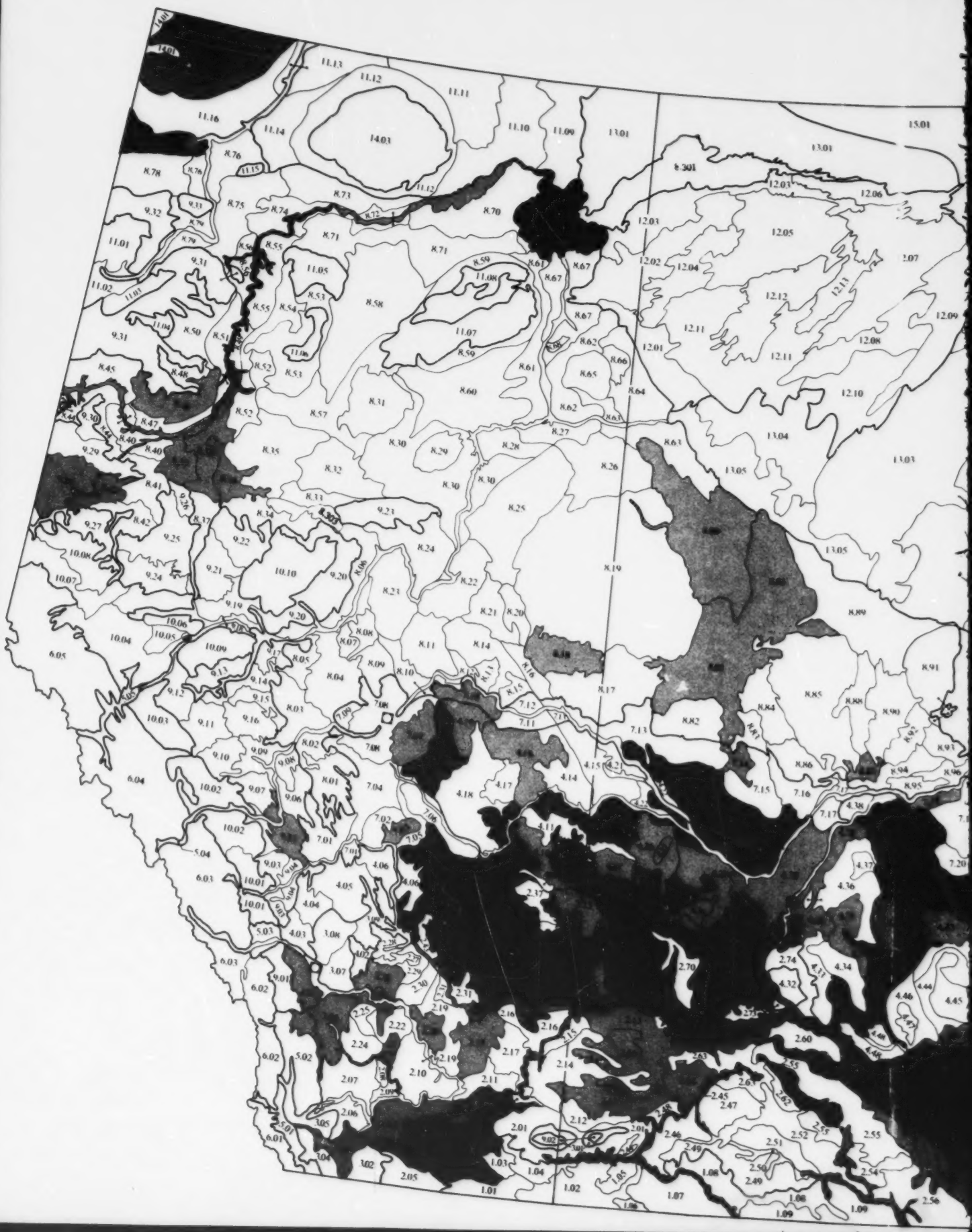
Nationally important:	Geese (mixed)	>15 000 birds
	White goose (Snow and Ross')	>15 000
	Canada Goose	>10 000
	Greater White-fronted Goose	>10 000
	Dark goose (unid.)	>10 000
Regionally important:	Geese (mixed)	5000 to 15 000 birds
	White goose (Snow and Ross')	5000 to 15 000
	Canada Goose	3000 to 10 000
	Greater White-fronted Goose	3000 to 10 000
	Dark goose (unid.)	3000 to 10 000
Locally important:	Geese (mixed)	1000 to 5000 birds
	White goose (Snow and Ross')	1000 to 5000
	Canada Goose	1000 to 3000
	Greater White-fronted Goose	1000 to 3000
	Dark goose (unid.)	1000 to 3000

There are 28 nationally important goose staging sites, 68 regional sites, and 207 local sites in the Prairie provinces (**Figure 7** and **Tables 11, 11a**).

Over-wintering geese are uncommon in the Prairie provinces. Five sites have more than 100 staging Canada Geese: in Alberta, on the Bow River at Calgary; and in Saskatchewan, on Gardiner Dam, Wascana Lake, Round Lake and Katepwa Lake. As with over-wintering habitat for ducks, such sites are a minor component of goose habitat.

Table 11. Sites and habitat subregions - staging geese.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
2.208	Sask	978	***	S. Sask R./Red Deer R. to Lk. Dief.	CABRI-ESTON /RIVER
2.302	Sask	387	***	Last Mountain Lake	LAST MTN. LK. /NORTH
2.32	Alta	6336	***	Richdale-Cessford Plain	PLOVER LAKE
2.36	Alta	610	***	Grassy Island Plain	GRASSY ISLAND LAKE
2.39	Alta	2720	***	Sounding Creek Plain	FITZGERALD LAKE
2.39	"	"	***	Sounding Creek Plain	KIRKPATRICK LAKE
2.41	Alta	1693	***	Chain Lakes Plain	CHAIN LAKES
2.61	Sask	1699	***	Old Wives Lake Basin	OLD WIVES LAKE
2.68	Sask	5771	***	Kindersley Plain	TEO LAKE /NORTH
2.71	Sask	6528	***	Eagle Creek Plain	BARBER LAKE
2.72	Sask	3329	***	Coteau Hills	LUCK LAKE
2.75	Sask	4740	***	Upper Qu'Appelle Plain	AXE LAKE
2.75	"	"	***	Upper Qu'Appelle Plain	BANK LAKE
2.76	Man	2703	***	Boissevain-Hartney Plain	WHITEWATER LAKE
4.07	Alta	3964	***	Castor Plain	SULLIVAN LAKE
4.12	A-S	2734	***	Provost Upland	"TIPTON" SLOUGH
4.25	Sask	1343	***	Fremont Upland	SCRUB LAKE
4.39	Sask	2991	***	Melfort Plain	WATERHEN MARSH
4.41	Sask	8299	***	Ponass Lakes Plain	LENORE LAKE
4.59	Sask	5980	***	Souris River Plain	FILLMORE AREA
4.60	Man	2786	***	Lake Souris Plain	OAK/PLUM LAKES
4.81	Man	2757	***	Shoal Lakes Plain	MARSHY POINT
4.81	"	"	***	Shoal Lakes Plain	SHOAL LAKES
4.83	Man	2853	***	Lower Red River Plain	OAK HAMMOCK MARSH
8.69	Alta	5587	***	Peace-Athabasca Delta	P.A. DELTA
8.77	Alta	2355	***	Zama Lake Plain	HAY-ZAMA LAKES
20.19	Man	2623	***	Fisher River Plain	LEE LAKE
22.01	Man	8819	***	Red River Valley	GRANTS LAKE
1.201	Sask	1373	**	Frenchman River/Alta. to U.S.A.	CYPRESS LAKE
2.02	Alta	5992	**	Chin Plain	40-MILE COULEE / SOUTH
2.04	Alta	2209	**	Verdigris Plain	TYRRELL LAKE
2.202	Alta	392	**	Little Bow R./Mosquito Cr. to Oldman R.	TRAVERS RESERVOIR
2.205	Alta	998	**	S. Sask R./Bow R. to Red Deer River	SANDY PT./BORDER
2.208	Sask	978	**	S. Sask R./Red Deer R. to Lk. Dief.	ESTON-LEMSFORD /R.
2.208	"	"	**	S. Sask R./Red Deer R. to Lk. Dief.	LEADER-ESTUARY /R.
2.210	Sask	1312	**	Qu'Appelle R./Lk. Dief. to Lumsden	EYEBROW LAKE



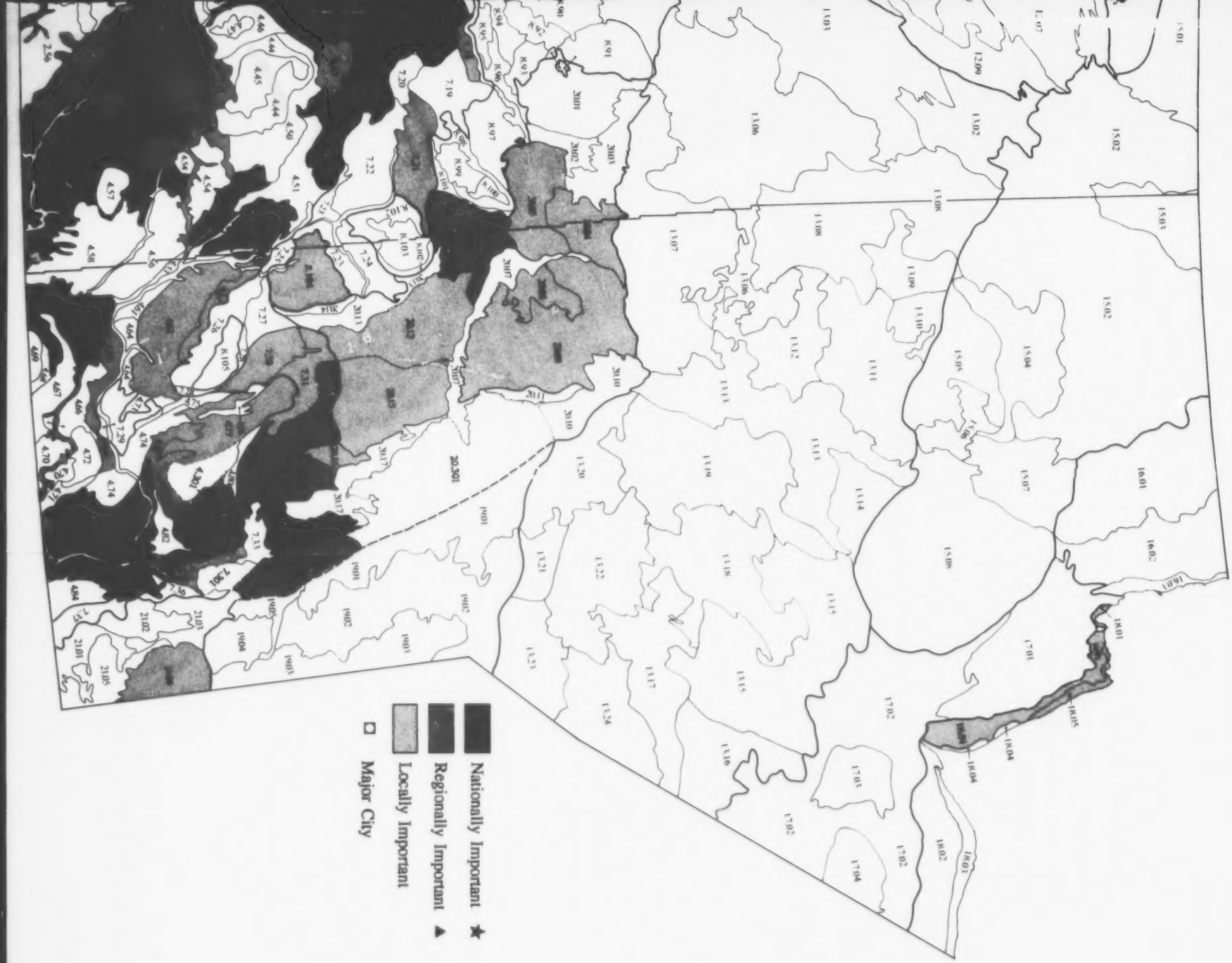


Fig. 7 Goose staging habitats

Table 11. (continued...2) Sites and habitat subregions - staging geese.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
2.210	Sask	"	**	Qu'Appelle R./Lk. Dief. to Lumsden	KETTLEHUT LAKE
2.210	"	"	**	Qu'Appelle R./Lk. Dief. to Lumsden	PELICAN LAKE
2.212	Sask	568	**	Eagle Cr./Scott-Zealandia	OPUNTIA LAKE
2.32	Alta	6336	**	Richdale-Cessford Plain	BIRKSHIRE RESERVOIR
2.32	"	"	**	Richdale-Cessford Plain	BRENT LAKE
2.32	"	"	**	Richdale-Cessford Plain	COLEMAN LAKE
2.33	A-S	7702	**	Oyen Upland	MARENGO SLOUGH
2.33	"	"	**	Oyen Upland	TEO LAKES
2.33	"	"	**	Oyen Upland	"STONEY VISTA"
2.34	S-A	3331	**	Sibbald Plain	BEAUFIELD MARSH
2.34	"	"	**	Sibbald Plain	CROOKSHANKS LAKE
2.34	"	"	**	Sibbald Plain	DEWAR LAKE
2.34	"	"	**	Sibbald Plain	EYRE LAKE
2.34	"	"	**	Sibbald Plain	HERRICK LOW LAKE
2.34	"	"	**	Sibbald Plain	KIYIU LAKE
2.34	"	"	**	Sibbald Plain	STREET LAKE
2.38	Alta	1120	**	Coronation Plain	ENSLEIGH LAKE
2.39	Alta	2720	**	Sounding Creek Plain	ANTELOPE LAKE
2.39	"	"	**	Sounding Creek Plain	GRAYS LAKE
2.39	"	"	**	Sounding Creek Plain	OLDMAN LAKE
2.39	"	"	**	Sounding Creek Plain	WISTE LAKE
2.41	Alta	1693	**	Chain Lakes Plain	DOWLING LAKE
2.41	"	"	**	Chain Lakes Plain	FARRELL LAKE
2.42	Alta	624	**	Hand Hills Upland	HANDHILLS LAKE
2.42	"	"	**	Hand Hills Upland	LITTLE FISH LAKE
2.45	Sask	1358	**	Swift Current Creek Valley	REED LAKE
2.58	Sask	7992	**	Regina Plain	IBSEN/BUTTERMILK LAKES
2.58	"	"	**	Regina Plain	WASCANA LAKE /AREA
2.59	Sask	1943	**	Tuxford Plain	SLOUGH N.E. OF MOOSE JAW
2.61	Sask	1699	**	Old Wives Lake Basin	CHAPLIN LAKE
2.68	Sask	5771	**	Kindersley Plain	SNIPE LAKE
2.68	"	"	**	Kindersley Plain	"LOZINSKY" SLOUGH
2.69	Sask	2427	**	Tramping Lake Plain	GRASSY LAKE
2.69	"	"	**	Tramping Lake Plain	MUDDY LAKE
4.07	Alta	3964	**	Castor Plain	GOUGH LAKE
4.07	"	"	**	Castor Plain	LANES LAKE
4.08	Alta	2512	**	Battle River Upland	BELLSHILL LAKE
4.12	A-S	2734	**	Provost Upland	CACTUS LAKE
4.12	"	"	**	Provost Upland	HALLAM LAKE
4.13	A-S	2213	**	Edgerton Plain	BALLOON LAKE

Table 11. (continued...3) Sites and habitat subregions - staging geese.

Unit No.	Prov	Area (km^2)	Rank*	Habitat subregion	Wetland site(s)
4.13	A-S	"	**	Edgerton Plain	SEAGRAM LAKES
4.20	Alta	2853	**	Beaverhill Lake Plain	BEAVERHILL LAKE
4.23	Sask	5779	**	N. Saskatchewan River Plain	MAKAROFF LAKE
4.24	Sask	5134	**	Redberry Lake Upland	SCENTGRASS LAKE
4.29	Sask	1236	**	Whiteshore Lake Plain	LANDIS LAKE
4.29	"	"	**	Whiteshore Lake Plain	WHITESHORE LAKE
4.31	Sask	1030	**	Dundurn Sandhills	BRIGHTWATER LAKE
4.39	Sask	2991	**	Melfort Plain	"AIRPORT" SLOUGH
4.40	Sask	1905	**	Tiger Hills Upland	BILL LAKE
4.42	Sask	2929	**	Lanigan Creek Plain	JANSEN LAKE
4.52	Sask	5459	**	Yorkton Plain	YORKTON LAKES
4.55	Sask	10758	**	Moose Mountain Upland	DEEP/STRAWBERRY LKS.
4.55	"	"	**	Moose Mountain Upland	GOOSEBERRY LAKE
7.32	Man	7694	**	Interlake Plain	CHATFIELD LAKE /AREA
7.32	"	"	**	Interlake Plain	DOG LAKE
8.210	Alta	2098	**	Peace River	TOWN TO FT. VERMILION
20.06	M-S	6022	**	Overflowing River Lowland	LEAF LAKE
20.18	Man	2593	**	Mantagao Lake Plain	SLEEVE LAKE
20.19	Man	2623	**	Fisher River Plain	ROY LAKE -- (S11-T25-R2-M1W)
20.20	Man	4567	**	Grindstone Point Lowland	HECLA-RIVERTON MARSHES

* *** = National importance
** = Regional importance

Table 11a. Sites of local importance for staging geese.

Unit No.	Prov	Habitat subregion	Wetland site(s)
2.02	Alta	Chin Plain	Crow Indian (King's) Lake; Unnamed (Grassy) Lake
2.03	Alta	Fincastle Plain	Taber Lake
2.04	Alta	Verdigris Plain	Milk River Ridge Reservoir; Verdigris Lake; unnamed wetland
2.13	S-A	Bigstick Lake Plain	Gull Lake; Junction Reservoir
2.18	Alta	Kininvie Plain	Louisiana Lakes
2.20	Alta	Lake Newell Plain	Lake Newell
2.205	Alta	S. Sask R./Bow R. to Red Deer R.	The Grande Forks-Suffield X-ing.; Med.Hat/Old Channel Lake
2.207	Alta	Red Deer R./Drumheller to S. Sask R.	Bindloss to Empress /River
2.208	"	S. Sask R./Red Deer R. to Lk. Dief.	Empress to Estuary /River; Cabri Lake
2.209	Sask	S. Sask R./Outlook portion	Saskatoon (downstream)
2.21	Alta	Lomond Upland	Little Bow Lake Reservoir
2.210	Sask	Qu'Appelle R./Lk. Dief. to Lumsden	Buffalo Pound Lake; Paysen Lake
2.212	Sask	Eagle Cr./Scott-Zealandia	Eagle Creek Reservoir
2.23	Alta	Blackfoot Plain	McGregor Lake
2.26	Alta	Crowfoot Plain	Deadhorse Lake; Eagle Lake; Namaka Lake
2.301	Sask	Lake Diefenbaker	Sask. Landing/Cabri; Stewart Valley Area
2.302	Sask	Last Mountain Lake	Last Mtn. Lake - Liberty Arm
2.32	Alta	Richdale-Cessford Plain	Berry Creek Reservoir; Bloor Lake; Oakland Lake; Traung Lake
2.33	A-S	Oyen Upland	N. Eyre Lake; Gregorson's Lake; Laporte Lake; "X-19" Slough
2.34	S-A	Sibbald Plain	Coleville Slough; Elemer Lake; Kissick Slough; Merid Slough; Schmidt's Slough; N.W. Smiley Dam; N.E. Steele's Lake; Steele's Lake; White Heron Lake; S. White Heron Lake; S.W. "Greene #1"
2.35	S-A	Neutral Upland	Loverna Slough
2.39	Alta	Sounding Creek Plain	Contracosta Lake; Goose Lake; Rushmere Lake
2.40	Alta	Rumsey Upland	Scapa Lake
2.45	Sask	Swift Current Creek Valley	Duncairn Reservoir

Table 11a. (continued...2) Sites of local importance for staging geese.

Unit No.	Prov	Habitat subregion	Wetland site(s)
2.53	Sask	Willow Bunch-Big Muddy Valley	Lake of the Rivers
2.57	Sask	Long Creek Plain	Dunnet Park
2.58	Sask	Regina Plain	Buck Lake; Condie Reservoir; Kronau Flats
2.64	Sask	Antelope Lake Plain	Antelope Lake
2.65	Sask	Bigstick Lake Sandhills	Bigstick Lake
2.66	Sask	Great Sandhills	Ingebright Lake
2.67	Sask	Mantario Plain	Mantario Slough; Redtop Slough
2.68	Sask	Kindersley Plain	Brock Slough; Cutbank Lake; Fairmount Lake; Madison Slough; Verendrye Lake; "Correction Line" Slough
2.69	Sask	Tramping Lake Plain	Baliol Slough; Denzil "Slough #1"; Denzil "Slough #2"; Slough S. of Denzil; Donegal Slough; Luseland Slough; Salvador Sloughs; S. Grill Lake
2.71	Sask	Eagle Creek Plain	Goose Lake; Swan Lake; Van Scoy Lake; Whitebear Lake
2.75	Sask	Upper Qu'Appelle Plain	Kutawagan Lake; Stalwart Marsh
3.03	Alta	St. Mary Plain	St. Mary Reservoir
3.06	Alta	Frank Lake Plain	Frank Lake
4.01	Alta	Okotoks Upland	Glenmore Reservoir
4.07	Alta	Castor Plain	Cameron Lake; Lonepine Lake; Marion Lake; Shooting Lake
4.10	Alta	Ribstone Plain	Sounding Lake; Shorncliffe Lake
4.12	A-S	Provost Upland	Cactus Lake; Cosine Lake; Fleeinghorse Lake; Hansman Lake; Macklin Lake; Plover Lake; Primate Slough; St. Lawrence Lake
4.13	A-S	Edgerton Plain	Manito Lake
4.16	Alta	Innisfree Plain	Kenilworth Lake
4.19	Alta	Mundare Plain	Bens/Watt Lakes
4.206	Sask	Qu'Appelle R./Lumsden to bdry.	Round Lake; Skinners Marsh
4.211	Man	Pembina R./Ninette to bdry.	Louise Lake; Swan Lake
4.23	Sask	N. Saskatchewan River Plain	Paddling Lake; Radisson Lake
4.24	Sask	Redberry Lake Upland	Rabbitt Lake
4.26	Sask	Cutknife Plain	End Lake; Flat Lake; Killsquaw Lake; Thackeray Lake
4.27	Sask	Cutknife Hills	Denzil "Slough #3"; Ear Lake; Grill Lake
4.28	Sask	Eagle Hills	Kimoff Lake
4.29	Sask	Whiteshore Lake Plain	Landis Lake

Table 11a. (continued...3) Sites of local importance for staging geese.

Unit No.	Prov	Habitat subregion	Wetland site(s)
4.30	Sask	S. Saskatchewan River Plain	Rice Lake; Strap Lake/Young Slough; "Bradwell National Wildlife Area"
4.35	Sask	Colonsay Plain	Zelma Reservoir
4.40	Sask	Tiger Hills Upland	Basin Lake; Middle Lake; Shannon/Van Lakes
4.41	Sask	Ponass Lakes Plain	Foam Lake; Mantrap/Flat Lakes; Ponass Lake; Ranch Lake; "Canola Project"
4.43	Sask	Quill Lakes Basin	Big Quill Lake; Little Quill Lake; Middle Quill Lake
4.49	Sask	Balcarres Plain	Dysart Slough
4.55	Sask	Moose Mountain Upland	Chapleau Lakes; Williams Marsh
4.59	Sask	Souris River Plain	Creelman Marshes
4.62	Man	Newdale Plain	Shoal Lake
4.63	Man	Rackham Hills	Pleasant Valley Reservoir
4.65	Man	Brandon Lakes Plain	"Alexander-Griswold" Marsh
4.77	Man	Westlake Till Plain	Big Point; Lonely Lake; Methley Marshes
4.78	Man	Whitemud River Plain	Big Grass Marsh
4.79	Man	Delta Marshes	Delta Marsh; Lake Francis
4.83	Man	Lower Red River Plain	"Ft. Whyte Center"
7.03	Alta	Buffalo Lake Plain	Buffalo Lake
7.07	Alta	Cooking Lake Upland	Ministik Lake
7.10	Alta	Whitford Plain	Whitford/Rush Lakes
7.14	Sask	Witchekan Plain	Witchekan Lake
7.18	Sask	Nipawin Plain	"Bergerin Project"
7.21	Sask	Red Deer River Plain	Bjork Lake
7.30	Man	Dauphin Lake Plain	Dauphin Lake
7.31	Man	Crane River Plain	Reykjavik Point; S. Sagemace Bay; Spence Lake
7.32	Man	Interlake Plain	Dennis/Russell Lakes; Lake Manitoba Narrows; Long Island Bay; Moosehorn Lake; Oak Island Marsh; Peonan Point; Portage Bay; Watchorn Bay
7.34	Man	Lake Winnipeg Terrace	Willow Point
7.35	Man	Red River Delta	Netley Marsh
8.104	M-S	Duck Mountain	Sarah Lake
8.18	Alta	Beaver River Plain	Berricki Slough; Charlotte Lake; Edward Lake; Osborne Lake
8.209	Alta	Peace R./Peace R. town to bdry.	Peace River
8.210	Alta	Peace River	Ft. Vermilion to the P.A. Delta

Table 11a. (continued...4) Sites of local importance for staging geese.

Unit No.	Prov	Habitat subregion	Wetland site(s)
8.36	Alta	Winagami Lake Plain	Kimiwan Lake; Winagami Lake; N.E. of Jean Cote
8.38	Alta	Falher Plain	Lac Magloire
8.39	Alta	Watino Plain	Smoky River; W. of Marie-Reine
8.43	Alta	Clairmount Plain	Bear Lake
8.46	Alta	Cardinal Lake Plain	Cardinal Lake
8.80	Sask	Ile a la Crosse Lowland	Beauval Marsh
8.81	Sask	Beaver River Plain	St. Cyr Lake
8.87	Sask	Paddockwood Plain	Cheal/Russell Lakes
9.05	Alta	Crimson Lake Plain	S.E. of Rocky Mtn. House
9.28	Alta	Beaverlodge Plain	La Glace Lake
14.02	Alta	Cameron Hills Upland	Bistcho Lake
18.01	Man	Rupert Creek Lowland	Entire Subregion
18.05	Man	Cape Churchill Beaches	Entire Subregion
20.04	M-S	Namew Lake Plain	Rocky Lake
20.05	S-M	Upper Saskatchewan Delta	Big Lake; N. McGregor Lake; Nisku Lake; Reader Lake; Saskeram Marshes
20.08	Man	Summerberry Lowland	Kelsey Lake; Little Kelsey Lake; Mawdesley Lake Complex; Summerberry Marshes
20.09	Man	Moose Lake Plain	Moose Lake (west shore)
20.12	Man	Winnipegosis Plain	Sagemace Bay
20.15	Man	Waterhen Lake Plain	Kawinaw Lake
20.16	Man	Lake St. Martin Lowland	Lake St. Martin
20.19	Man	Fisher River Plain	Fisher Bay
21.04	Man	Whiteshell River Plain	Brant Lake; Mallard Lake

4.7 North American Waterfowl Management Plan

The North American Waterfowl Management Plan (NAWMP) focuses on the status, importance, use and factors influencing population trends of waterfowl. The Plan specifically targets habitat changes and competing land uses that contributed to the 1980s significant decline in duck populations. With this information, the NAWMP further provides goals and objectives to secure the long-term conservation of waterfowl populations and their habitats, with recommendations to restore depleted populations to levels of the mid-1970s.

The NAWMP, approved by the governments of Canada and the United States, was signed into effect in 1986 for a 15-year period. Preparation and review by government agencies, non-government organizations and the public-at-large preceded the official signing, so the final document has the contributions, support and commitment of managers and users of the wildlife resource.

A primary goal of the NAWMP is a sustainable annual breeding population of 62 million ducks, and a fall flight of 100 million ducks. Trends and population goals for the 11 most common duck species are of greatest concern. The most demanding population requirements are for species primarily associated with the Prairie provinces: Mallard, Northern Pintail, and Blue-winged Teal.

Within the framework of the NAWMP, the **Prairie Habitat Joint Venture** (PHJV) provides coordination and guidance by provincial steering/technical committees. This venture, the largest component of the NAWMP, is dedicated to improvement of waterfowl habitat on 1.46 million hectares (3.6 million acres) of the Prairie provinces. **Provincial Implementation Plans** prepared by multiple-agency groups of each province outline specific approaches by separate participatory jurisdictions. Conservation efforts are directed at the priority areas in the provincial plans (**Figure 8**).

Approaches taken by the provincial committees vary in their extent, emphasis and implementation, for they are based upon site-specific realities, including differences in how land is managed, land-use legislation and regional perceptions of waterfowl status and problems. Representatives of the Canadian Wildlife Service have participated in development of the Provincial Implementation Plans.

The target of the *Alberta Implementation Plan* is a sustainable fall flight of 3.15 million Mallards and 2.93 million Northern Pintails. The Aspen Parkland biome is the major focus for land management activities, with secondary initiatives planned for the Prairie biome and the Peace-Parkland biome. (Ecological boundaries differ slightly from those of Figure 1 because of the ecological land classification criteria used by provincial government biologists.)

The target of the *Manitoba Implementation Plan* is three-fold: to ensure a sustainable breeding population of 2 million ducks (of which an average 400 000 Mallards produce an average fall flight of 760 000); to encourage and implement land management practices on 198 450 hectares (490 000 acres) of prime waterfowl areas in southern Manitoba; and, to develop a conservation strategy that combines enhanced duck production with soil and water conservation for the agricultural base.

Habitat initiatives are being implemented in southwestern Manitoba on 146 townships selected on the basis of waterfowl capability maps, land inventory mapping of residual habitat, and assessment of populations censused by annual stratified CWS waterfowl surveys during 1970 to 1979.

Manitoba's Heritage Marshes Program, which includes securing and enhancing important staging and moulting sites, contributes to the overall objectives of the PHJV.

The target of the *Saskatchewan Implementation Plan* is a sustainable breeding population of 3 million Mallards in southern Saskatchewan by the year 2002, through enhancement of waterfowl habitat on 2.31 million hectares (5.7 million acres) of the agricultural zone. As in Alberta, Saskatchewan's waterfowl managers advocate land management activities that conserve and improve upland nesting cover, and, at the same time, are compatible with good soil and water conservation practices.

Focal areas in Saskatchewan include six regions within the Aspen Parkland (Cut Knife Hills; Thickwood Hills; Allan/Tiger/Minichinas Hills; Quill Lakes/Touchwood/ Beaver Hills; Pheasant Hills; and Moose Mountain Uplands) and one within the Grassland (Missouri Coteau).

The importance of large wetlands for staging and moulting waterfowl is recognized by initiatives for securement through legislation, enhancement through a "third phase" of the Heritage Marshes Program, and reduction of conflicts with landowners by devising a Crop Damage Control Program integrated with the seven target areas.

4.8 Sandhill Cranes

The Sandhill Crane, though not a species of waterfowl, shares many habitat requirements and management needs with waterfowl - geese, in particular. Hence it is mentioned here.

The Sandhill Crane breeds in low numbers in areas of central and northern Manitoba, Saskatchewan and Alberta; and northward into the Low Arctic. The "Mantagao Wildlife Management Area" in the northern Interlake region near Ashern, Manitoba, is perhaps the best known area. There are scattered breeding records in the parklands and grasslands, mainly in isolated areas of Saskatchewan.

During spring and fall migrations, most of North America's Sandhill Cranes stage in the Prairie provinces. Concentrations are in central Saskatchewan - at the north end of Last Mountain Lake, at Kutawagan Lake and Quill Lakes, and west-centrally from the South Saskatchewan River northward to the Kindersley area.

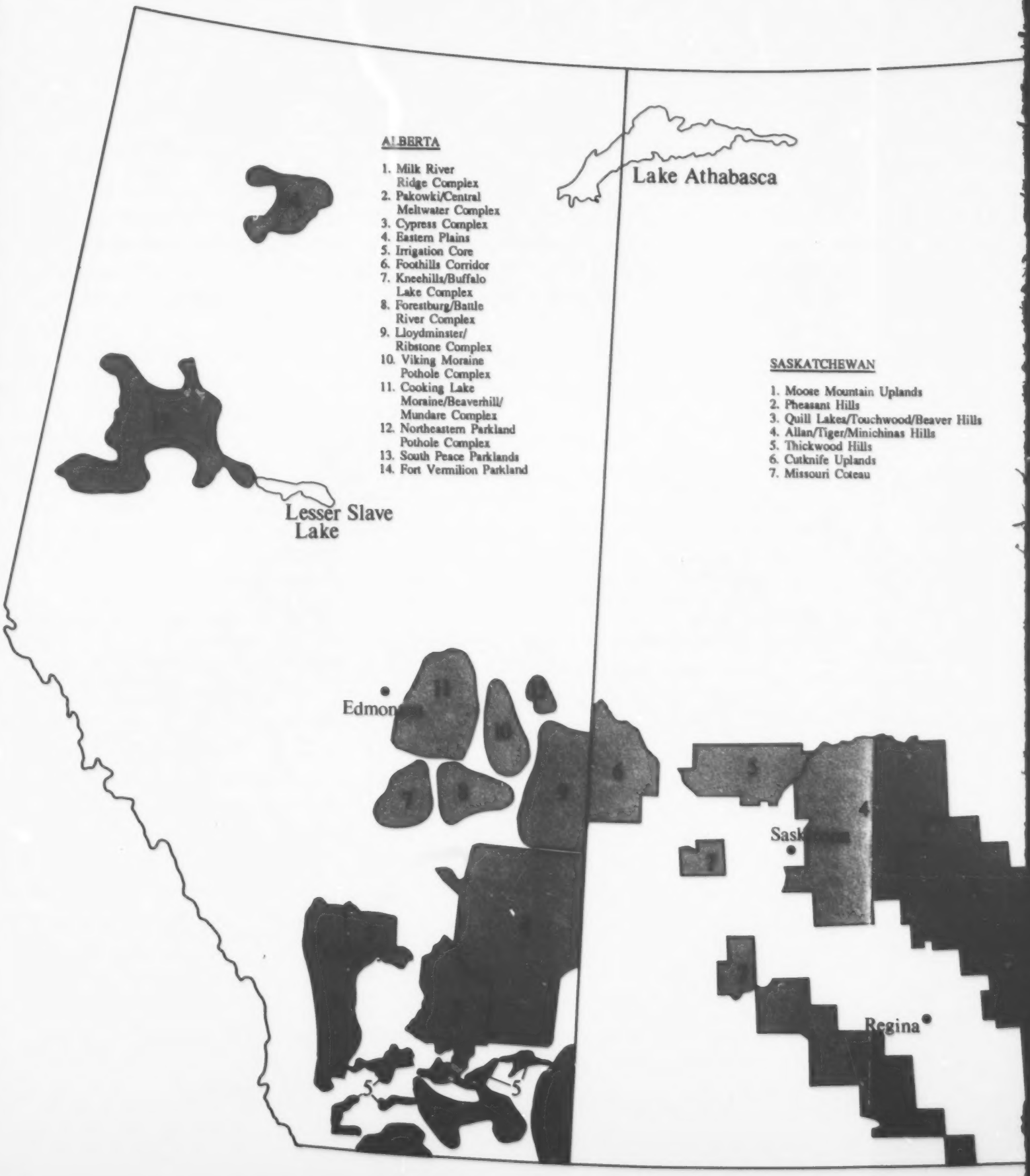

ALBERTA
1. Milk River Ridge Complex
2. Pakowki/Central Meltwater Complex
3. Cypress Complex
4. Eastern Plains
5. Irrigation Core
6. Foothills Corridor
7. Kneehills/Buffalo Lake Complex
8. Forestburg/Battle River Complex
9. Lloydminster/ Ribstone Complex
10. Viking Moraine Pothole Complex
11. Cooking Lake Moraine/Beaverhill/ Mundare Complex
12. Northeastern Parkland Pothole Complex
13. South Peace Parklands
14. Fort Vermilion Parkland
Lake Athabasca
Lesser Slave Lake
SASKATCHEWAN
1. Moose Mountain Uplands
2. Pheasant Hills
3. Quill Lakes/Touchwood/Beaver Hills
4. Allan/Tiger/Minichinas Hills
5. Thickwood Hills
6. Cutknife Uplands
7. Missouri Coteau
Edmon
Sask
Regina

Fig. 8 Target areas for implementation of the North American Waterfowl Management Plan in the Prairie provinces

Autumn concentrations are the largest, and the period of use extends from mid-August through to late October and early November. Smaller concentrations are in east-central Alberta, in central and southeast Manitoba (including Big Grass Marsh and south of Lake Dauphin) and in southern Saskatchewan.

5.0 HABITAT USE BY COLONIAL WATERBIRDS

Sixteen species of colonial waterbirds nest regularly each summer in the Prairie provinces. Documentation of distribution and status of most species is facilitated by their conspicuous tendency to concentrate on breeding, roosting and foraging sites. Those sites used over a number of years, often by several species, are easily monitored, providing reliable trends in abundance and distribution. Suspected data gaps for colonial birds of the Prairie provinces include northern Manitoba and northern Saskatchewan, where unrecorded nesting colonies of gulls and terns may occur (Koonz and Rakowski 1985).

Colonial species are particularly vulnerable to site-specific disturbance and habitat changes (Jurick 1985). However, they can adapt by colonizing suitable new habitat or recolonizing areas that have regenerated - often because of restored water levels and reduced human disturbance. Some species, such as the Ring-billed Gull, are adept pioneers of new nesting sites, after which other colonial species may follow.

Toxic wastes and pesticides pose serious threats to colonial species because of their diets of fish and/or aquatic invertebrates; or, in the case of several gull species, because of their habit of foraging in dump sites. Monitoring of colonial species as biological indicators to provide early warnings of chemical pollution has been undertaken by the CWS across Canada, most notably in the Great Lakes region.

5.1 Breeding

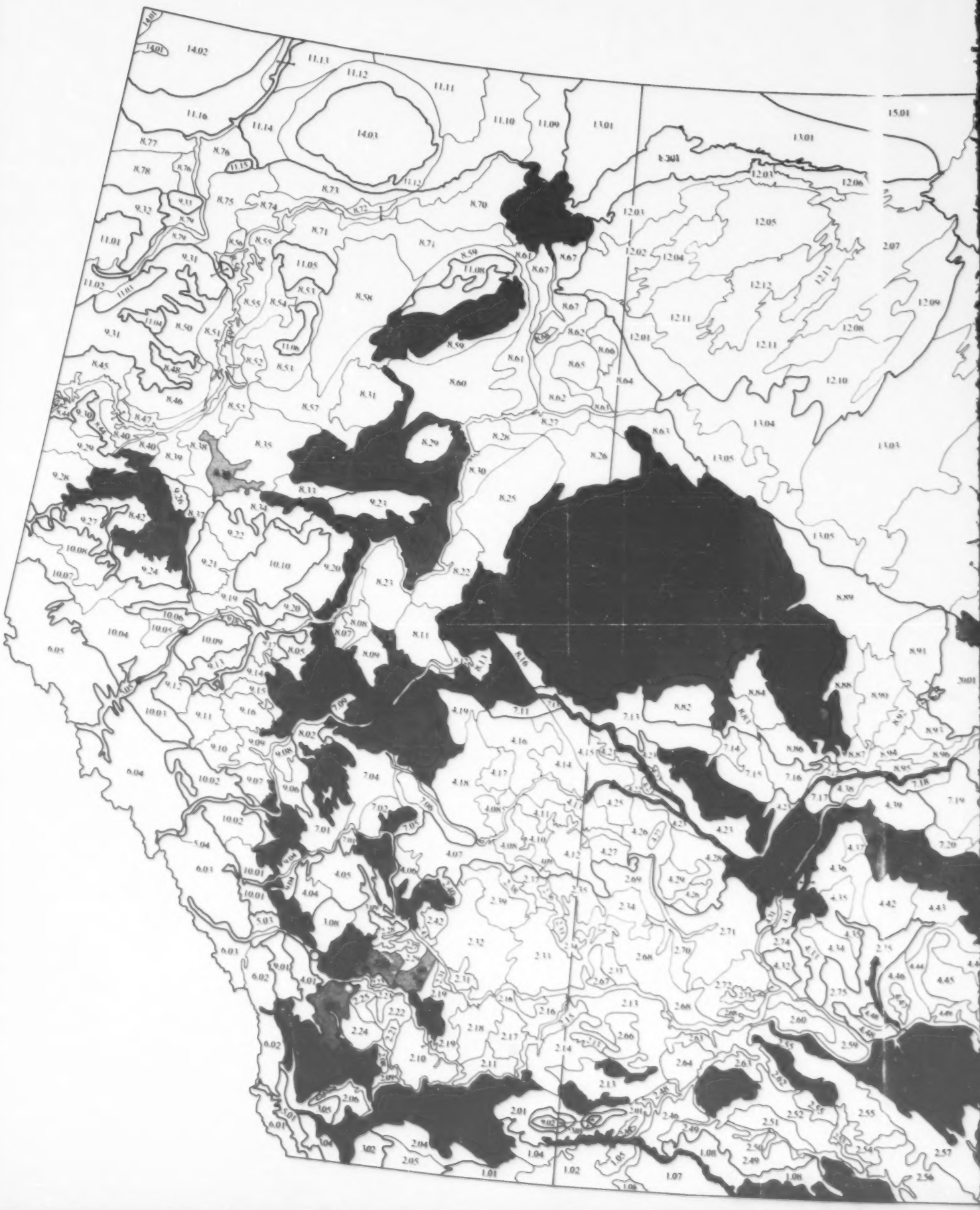
Five families of breeding colonial waterbirds are discussed herein: grebes, pelicans, cormorants, herons, and gulls and terns. All are associated with water and are frequently found in mixed-species colonies adjacent to or surrounded by water.

Collectively, these species are reported breeding in 90 habitat subregions of the 542 listed in Table 5. Subregions having the **159** most significant sites (i.e., those with one or more nationally important or regionally important colonies, or with at least five colonies designated locally important or better - 5ON; 103R; 6L) are illustrated in **Figure 9** and listed in **Table 12**. The importance ratings in Figure 9 are based on the highest rating of any individual species at any site within the habitat subregion.

Grebes

The Western Grebe and the Eared Grebe nest in dense colonies over water. The Red-necked Grebe is not "truly" colonial; however, on some lakes it nests in loose associations.

Western Grebe distribution in Canada is almost entirely within the Prairie provinces - throughout north-central and northern Alberta, central and northern Saskatchewan and southwestern Manitoba. Recently, a small segment of this population has been recognized as a distinct species, Clarke's Grebe (Godfrey 1986), breeding in southern Alberta and southern Saskatchewan (e.g., Old Wives Lake), and suspected of breeding in southern Manitoba. Many observers do not differentiate between the species, therefore, herein all colonies are designated as "Western Grebe."



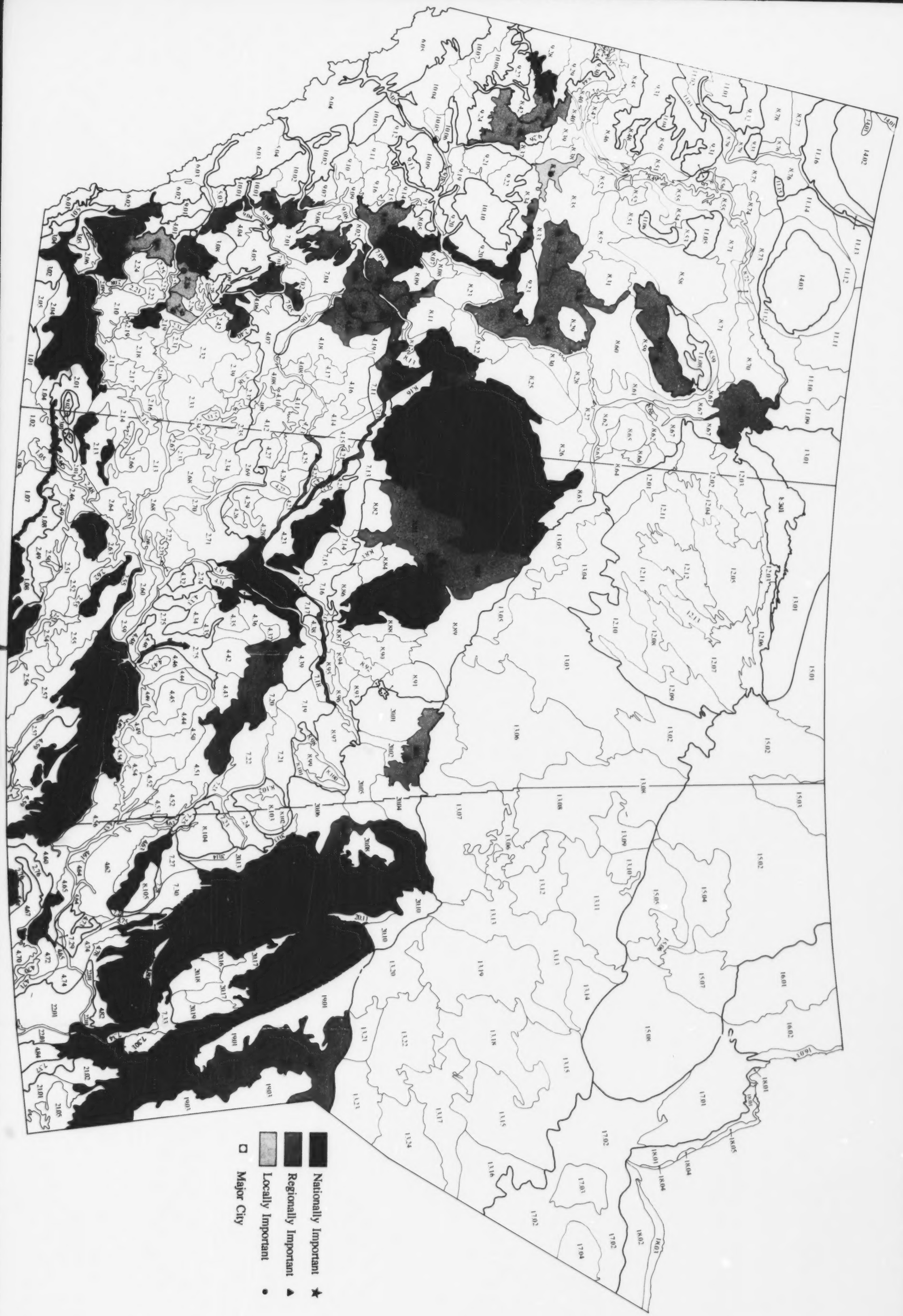


Fig. 9 Priority sites and habitat subregions of breeding colonial waterbirds

Table 12. Priority sites - breeding colonial waterbird species.+

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species++ WEREAD EANWC GGGGPC RRRREO	GB BC HN EH	RCHCBFFB- BAEOOROLG GGGTGGTT/ UUUEUUEET
1.03	Alta	687	PAKOWKI LAKE	-L--LL	-R	LL-L-L---
1.09	Sask	3334	FIFE LAKE	R-----	--	----------
1.201	Sask	1373	CYPRESS LAKE	-R----	--	----------
2.02	Alta	5992	MURRAY LAKE	-----L	R-	RL-------
2.02	"	"	UNNAMED (GRASSY) LK.	-N----	--	----------
2.03	Alta	3305	STIRLING LAKE	-L---L	-L	RL---L---
2.07	Alta	2539	KEHO LAKE	-----L	--	RN-L-----
2.12	S-A	1514	HARRIS RESERVOIR	------	R-	----------
2.12	"	"	ROSS CREEK	------	R-	----------
2.20	Alta	1090	LAKE NEWELL	-L--LR	L-	NL-L-----
2.26	Alta	1374	NAMAKA LAKE	LL----	--	LL-L-L-L-
2.30	Alta	1053	BARKENHOUSE LAKE	LL---L	-L	LL-L-----
2.302	Sask	387	LAST MTN. LAKE /NORTH	-L--LR	--	RL-L-LL--
2.302	"	"	LML /SARNIA BEACH	LL----	--	LL-L--L--
2.41	Alta	1693	DOWLING LAKE	-----L	L-	RR-L-----
2.47	Sask	2429	NEIDPATH SLOUGHS	-R----	--	----------
2.58	Sask	7992	TATAGWA LAKE	------	-R	-----R---
2.61	Sask	1699	OLD WIVES LAKE	L---NL	RL	R----R---
2.65	Sask	721	BIGSTICK LAKE	------	-R	R--------
3.03	Alta	1651	ST. MARY RESERVOIR	-----L	--	RN-------
3.06	Alta	2390	FRANK LAKE	-L----	-L	LL-L-L---
3.07	Alta	1402	JANET SLOUGH	-R----	--	----------
4.02	Alta	718	IRRICANA RESERVOIR	-----L	--	RN-L-----
4.03	Alta	1091	BEAVERDAM CREEK	------	R-	----------
4.06	Alta	1350	WOODS LAKES	--R---	L-	----------
4.20	Alta	2853	BEAVERHILL LAKE	----LL	L-	RL-L-----
4.201	Sask	1260	DAVIDSON SLOUGHS	-R----	--	----------
4.24	Sask	5134	REDBERRY LAKE	----LL	--	RN-------
4.30	Sask	7509	RICE LAKE	-L----	-L	-----N---
4.301	Man	2231	"DUCK ISLAND COMPLEX"	----RN	-L	N-LN-----
4.301	"	"	SCOTCH BAY	------	--	L-R------
4.40	Sask	1905	BASIN LAKE	----LR	--	----------
4.41	Sask	8299	FISHING LAKE	------	R-	----------
4.41	"	"	LENORE LAKE	----LR	R-	----------
4.55	Sask	10758	STRAWBERRY LAKES	-R----	--	----------
4.57	Sask	1166	MOOSE MTN. PARK	------	R-	----------
4.58	S-M	6166	LITTLE PIPESTONE CR.	------	R-	----------
4.66	Man	1719	N. ROCK LAKE	------	R-	----------
4.69	Man	666	REBECCA LAKE	------	N-	----------
4.77	Man	4801	SANDY BAY	R-----	--	----------
4.79	Man	372	CLANDEBOYE BAY	------	--	R-----N--

Table 12. (continued...2) Priority sites - breeding colonial waterbird species.+

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species++ WER-AD EAN-WC GGGGPC RRRREO	GB BC HN EH	RCHCBFFB- BAEOOROLG GGGTGGTT/ UUUEUUEET
4.79	Man	"	DELTA MARSH	N-----	--	-------R--
4.79	"	"	LAKE FRANCIS	------	--	-----R---
4.81	Man	2757	EAST SHOAL LAKE	----NL	--	--NL-----
4.81	"	"	MARSHY POINT	N-----	LN	--L--L---
4.81	"	"	NORTH SHOAL LAKE	RR----	--	----------
4.83	Man	2853	OAK HAMMOCK MARSH	LL----	-L	--L--RL--
5.02	Alta	3361	MEINSINGER LK. (T15-R2)	------	R-	----------
7.03	Alta	691	BUFFALO LAKE	L-L---	L-	RL-L-LL--
7.07	Alta	2277	ASTOTIN LAKE	--R---	--	----------
7.07	"	"	MIQUELON LAKES	------	--	R---------
7.08	Alta	4627	BIG LAKE	------	--	-----R---
7.10	Alta	1331	WHITFORD/RUSH LAKES	LL----	-R	-----LL--
7.12	Alta	600	LAC CANARD	-----L	R-	----------
7.203	A-S	1556	BIG GULLY CREEK	------	R-	----------
7.203	"	"	"MARIE HILL" AREA	------	R-	----------
7.204	Sask	899	FORT A LA CORNE	------	R-	----------
7.26	Man	2946	BALDY LAKE	------	R-	----------
7.31	Man	2823	BACHELORS ISLAND	-----L	--	R-L------
7.32	Man	7694	DOG LAKE	----NL	R-	N---------
7.32	"	"	E. ELM POINT	------	N-	----------
7.32	"	"	GARDEN ISLAND	------	R-	----------
7.32	"	"	LONG ISLAND BAY	R-----	--	----------
7.32	"	"	NORTH TWIN ISLAND	------	N-	----------
7.32	"	"	WATERHEN RIVER	R-----	--	----------
7.35	Man	306	PARISIAN LAKE	LR----	--	-----LN--
7.36	Man	952	S. BALSAM BAY	------	--	-------R--
8.01	Alta	2654	DICK LAKE	------	--	--------R-
8.03	Alta	2660	CHIP LAKE	-L----	R-	LL-L-----
8.04	Alta	3831	ARTHUR LAKE	------	R-	----------
8.04	"	"	LAC STE ANNE	N-L---	--	---L-----
8.04	"	"	MAJEAU LAKE	------	R-	----------
8.06	Alta	2980	E. LESSER SLAVE LAKE	------	--	L------N-
8.10	Alta	1472	WAKOMAO LAKE	------	R-	----------
8.14	Alta	2980	BUNDER LAKE	-R----	--	----------
8.14	"	"	CACHE LAKE	------	--	--------N-
8.14	"	"	KERR LAKE	------	R-	----------
8.14	"	"	REED LAKE	-N----	--	---L-L---
8.15	Alta	762	DUCK LAKE	------	--	-----N---
8.15	"	"	LAC SANTE	--L---	--	-----R---
8.17	S-A	6278	FROG LAKE	L----R	R-	RRL------
8.17	S-A	"	MINISTIKWAN LAKE	------	R-	----------

Table 12. (continued...3) Priority sites - breeding colonial waterbird species.+

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species++ WERAD EANWC GGGGPC RRRREO	GB BC HN EH	RCHCBFFB- BAEOOROLG GGGTGGTT/ UUUEUUEET
8.17	S-A	"	MURIEL LAKE	R-----	--	----------
8.17	"	"	REITA LAKE	R-----	--	----------
8.17	"	"	THOMPSON LAKES	------	--	-------N-
8.18	Alta	2963	CHARLOTTE LAKE	-R----	--	---R---R-
8.18	"	"	EDWARD LAKE	-N----	--	---L---R-
8.18	"	"	FORSYTH LAKE	-R----	--	L--R-N---
8.18	"	"	HAROLD LAKE	-R----	--	----------
8.18	"	"	JESSIE LAKE	-N----	--	----------
8.18	"	"	MALONEY LAKE	-L----	--	-------N-
8.18	"	"	MANATOKAN LAKE	-R----	--	----------
8.18	"	"	STEBBING LAKE	-R----	--	----------
8.19	A-S	27523	COLD LAKE	N-L---	--	------L--
8.19	A-S	"	DE BALINHARD LAKE	------	R-	----------
8.19	"	"	PRIMROSE LAKE	----NR	L-	LRLR-----
8.19	A-S	"	WINEFRED LAKE	-----L	L-	LLLL-----
8.19	"	"	WOLF LAKE	R-----	--	----------
8.20	Alta	1227	IRONWOOD LAKE	------	--	---R-----
8.21	Alta	2188	BEAVER LAKE	------	R-	----------
8.21	"	"	LAC LA BICHE	N----L	L-	-N-R-----
8.21	"	"	RICH LAKE	-N----	--	----------
8.24	Alta	3852	ORLOFF LAKE	---L--	R-	----------
8.30	Alta	8624	PELICAN LAKE	----LL	R-	----------
8.303	Alta	1133	ASSINEAU POINT	R-----	--	----------
8.303	"	"	DRIFTPILE POINT	R-----	--	-------L-
8.32	Alta	3886	UTIKUMA LAKE	R---LL	--	-R-L--L--
8.36	Alta	1724	WINAGAMI LAKE	LL----	--	-----LLL-
8.41	Alta	1978	KLESKUN LAKE	-L----	--	-L---R---
8.43	Alta	1431	FERGUSON LAKE	------	--	RL---R---
8.43	"	"	FLYINGSHOT LAKE	-L----	--	-------N-
8.43	"	"	WOOD LAKE	-R----	--	----------
8.69	Alta	5587	RICHARDSON LAKE	------	--	-------R-
8.80	Sask	11372	CHURCHILL LAKE	-----R	--	----------
8.80	"	"	KAZAN LAKE	----RN	R-	-L-------
8.81	Sask	17620	DORE LAKE	----LR	--	-LLL-----
8.85	Sask	10351	LAVALLEE LAKE	----NR	L-	---------L
9.03	Alta	1487	BURNTSTICK LAKE	------	--	-------R-
9.05	Alta	1651	COW LAKE	------	R-	----------
9.25	Alta	3819	STURGEON LAKE	------	--	-------R-
11.07	Alta	6734	NAMUR LAKE	----L-	--	-RL------
19.02	Man	17433	EARDLEY LAKE	------	R-	----------
19.04	Man	3081	LAC DU BONNET	------	R-	----------

Table 12. (continued...4) Priority sites - breeding colonial waterbird species.+

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species++ WEAGGRR	ERAGGRR	-AWGGRR	-WCPEO	GBBCHNEH	RBAGGUU	CHEGGUU	CBOGTEU	FFROGGUU	B-LGTT/EET
19.05	Man	1530	"PIPESTONE ROCK"	-	-	-	-	R	R	-	-	R	-
20.03	Sask	4131	SUGGI LAKE	-	-	-	-	R	R	-	-	-	-
20.07	Man	3895	GULL BAY	-	-	-	-	-	-	-	-	-	-
20.09	Man	16133	NORTH MOOSE LAKE	-	-	-	-	R	L	-	-	-	-
20.09	"	"	SOUTH MOOSE LAKE	-	-	-	-	R	R	-	-	-	-
20.09	"	"	TALBOT LAKE	-	-	-	-	L	L	-	-	-	-
20.12	Man	8879	ARCHIE ISLAND	-	-	-	-	-	R	-	-	-	-
20.12	"	"	S. CAMPING ISLAND	-	-	-	-	-	L	N	-	-	-
20.12	"	"	CHARTRAND ISLAND	-	-	-	-	-	-	-	-	-	-
20.12	"	"	CIRCLE ISLAND	-	-	-	-	R	R	-	-	-	-
20.12	"	"	CORMORANT ISLAND	-	-	-	-	-	L	-	-	-	-
20.12	"	"	E. DAWSON BAY	-	-	-	-	-	L	-	-	-	-
20.12	"	"	GOOSE ISLANDS	-	-	-	-	-	R	-	-	L	-
20.12	"	"	HUNTER'S POINT S.	-	-	-	-	-	L	N	-	-	-
20.12	"	"	N. LAKE WINNIPEGOSIS	-	-	-	-	N	-	-	-	-	-
20.12	"	"	N. LONG ISLAND	-	-	-	-	-	N	L	-	N	-
20.12	"	"	MACKAY ISLAND	-	-	-	-	-	-	N	-	-	-
20.12	"	"	PELICAN LAKE S.	-	-	-	-	N	R	-	-	-	-
20.12	"	"	PIGEON ISLAND	-	-	-	-	-	-	R	-	-	-
20.12	"	"	ROWAN ISLAND	-	-	-	-	-	L	N	-	-	-
20.12	"	"	SEALY ISLAND	-	-	-	-	-	L	-	-	R	-
20.12	"	"	N.E. SPRUCE ISLAND	-	-	-	-	R	N	-	-	L	-
20.12	Alta	8879	SUGAR ISLAND	-	-	-	-	-	-	N	-	-	-
20.15	Man	9094	CHITEK LAKE	-	-	-	-	-	-	R	-	-	-
20.15	"	"	KAWINAW LAKE	-	-	-	-	N	L	L	-	N	-
20.15	"	"	S.E. LAKE WINNIPEGOSIS	-	-	-	-	R	-	-	-	-	-
20.20	Man	4567	S.E. HECLA ISLAND	-	-	-	-	-	L	N	-	-	-
20.301	Man	15739	ASHMALL POINT	-	-	-	-	-	-	-	-	-	-
20.301	"	"	GULL BAY	-	-	-	-	-	-	-	-	-	-
20.301	"	"	PELICAN ISLAND	-	-	-	-	-	L	-	-	R	-
20.301	"	"	ST. MARTIN ISLAND	-	-	-	-	R	N	L	L	-	-
21.03	Man	2962	S. MCARTHUR FALLS	-	-	-	-	-	-	-	-	-	-
21.04	Man	4020	FALCON LAKE/RIVER	-	-	-	-	-	-	R	-	-	-
21.04	"	"	GEORGE LAKE	-	-	-	-	-	-	-	-	-	-
21.04	"	"	MALLARD LAKE	-	-	-	-	-	-	R	-	-	-
21.04	"	"	ROCK LAKE	-	-	-	-	-	-	-	-	-	-

+ N = National importance; R = Regional importance; L = Local importance

++ *in sequence*: Western Grebe, Eared Grebe, Red-necked Grebe, grebe sp.; American White Pelican, Double-crested Cormorant; Great Blue Heron, Black-crowned Night-Heron; Ring-billed Gull, California Gull, Herring Gull, Common Tern, Bonaparte's Gull, Franklin's Gull, Forster's Tern, Black Tern, gull/tern sp.

Colonies of more than 500 nests or breeding pairs are nationally important; those of 100 to 500 nests or breeding pairs are regionally important; and colonies of any smaller size are considered locally important. The largest colony of 2400 nests was recorded at Marshy Point, Manitoba. Overall, this species is considered in decline (Koonz and Rakowski 1985).

There are 5 nationally important, 11 regional, and 10 local sites for the Western Grebe in the Prairie provinces.

Eared Grebe ranges from extreme southwestern Manitoba through central and southern portions of Saskatchewan and Alberta and into central British Columbia (Godfrey 1986). It often nests in association with the Franklin's Gull. Koonz and Rakowski (1985) considered the Eared Grebe in decline, perhaps because it is intolerant of water level changes and vulnerable to expansion of areas settled by humans (McAllister 1958, Riske 1976). The species adapts to fluctuations in water levels of prairie marshes - its presence reflects only suitable conditions.

Five colonies with more than 800 nests (up to 10 000 nests at Rich Lake, Alberta) are nationally important; 14 colonies with 300 to 800 nests are regionally important; and 16 colonies with 20 to 300 nests are locally important.

Red-necked Grebe is widespread throughout Canada, including western and central-southern regions where an estimated 5500+ breeding adults are distributed primarily in Alberta (2500+), Manitoba (1000+) and Saskatchewan (500+) (De Smet 1982). The Aspen Parkland is the region of greatest abundance, where water levels are generally stable. Significant numbers do not occur in the most southern grasslands of Alberta and Saskatchewan, nor in the northern one-third of Manitoba.

In Manitoba, grebe concentrations are in the Duck Mountains, Turtle Mountains, Waterhen Lake Region and south of Riding Mountain National Park. In Saskatchewan, high breeding densities are in Prince Albert National Park and Meadow Lake Provincial Park. In Alberta, the largest nesting concentrations of the Red-necked Grebe are near Edmonton and Calgary, and at Lesser Slave Lake. Riske (1976) documented a substantial decline in populations in Alberta over the period 1971 to 1976, attributed largely to increased human recreational activity and cottage development on lakes.

The Red-necked Grebe is primarily a solitary breeder, therefore few "colonial" sites are recorded. Nonetheless, there are two regionally important sites with 50 to 95 pairs, and four locally important sites with 10 to 50 pairs.

Pelicans and Cormorants

Pelicans and cormorants, closely related taxonomic families with similar habits, frequently nest in associated colonies. In Canada, the ***American White Pelican*** breeding range encompasses the eastern one-half of Alberta, the central and southern portions of Saskatchewan, and the southwestern one-third of Manitoba. The ***Double-crested Cormorant*** has essentially the same range, but it does not breed in extreme northern Alberta. Nationally, it also occurs eastward to the Great Lakes, along the St. Lawrence River into the Maritimes, and also into coastal southern British Columbia (Godfrey 1986).

Documented numbers of breeding pelicans and cormorants in the Prairie provinces have increased significantly in the last two decades, due at least in part to more thorough survey coverage (Vermeer 1970, 1973, Brechtel 1981, Koonz 1987, Roney and Hlady 1986). The Canadian population of breeding pelicans in 1986 was estimated at 50 000 pairs (Koonz 1987). Estimates of non-breeding populations (including subadults) are not with any consistent degree of accuracy.

The pelican, classified as "Threatened" by COSEWIC in 1978, was removed from the listed species of concern in 1987. The pelican and cormorant are not protected under the Migratory Birds Convention Act; however, Saskatchewan and Alberta have special legislation that protects nesting colonies (Koonz 1987).

Nesting colonies of the Double-crested Cormorant and the American White Pelican are traditional, yet colony sites are often used intermittently, with breeding re-established when water conditions become suitable. Some colonies in this report are not currently active; however, all have been used in the past 10 to 15 years. Perhaps, over time, a successful breeding population requires a variety of sites.

Small breeding colonies may be significant, therefore there is no minimum size for documentation of important sites.

For pelicans, 8 nationally important sites have more than 2000 nests (to a maximum of 6822 nests at Primrose Lake, Saskatchewan); 10 regional sites have 500 to 2000 nests; and 12 local sites have fewer than 500 nests.

For cormorants, 5 nationally important sites have more than 2000 nests (to a maximum of 3120 nests at Kazan Lake, Saskatchewan); 16 regional sites have 500 to 2000 nests; and 30 local sites have fewer than 500 nests.

Herons and Egrets

In the Prairie provinces, two colonial heron species nest in different circumstances. The ***Great Blue Heron*** (which hereinafter may be referred to as "heron") nests primarily in trees, usually along rivers or near waterbodies. The ***Black-crowned Night-Heron*** (night-heron) primarily nests in dense emergent aquatic marsh vegetation.

The heron is widely distributed, with most of its population in eastern Canada. The Prairie distribution includes roughly the entire southern one-half of all three provinces (Godfrey 1986). The heron is suspected to be in decline throughout much of its range (Desgranges and Laporte 1979). In western Manitoba, heron colonies have disappeared from many former sites, with some of the population possibly shifting eastward and southward (Koonz and Rakowski 1985). In

Alberta, known colony numbers doubled between 1967 and 1980 (Brechtel 1981). Average colony size in Manitoba is larger, and the total population about equals that in both Saskatchewan and Alberta (Vermeer and Hatch 1972, Koonz and Rakowski 1985).

The night-heron occurs within the Prairie provinces in the northern Mixed-grass Prairie and Aspen Parkland, where its breeding population is sparse, with relatively few colonies recorded. The species has a rather limited breeding distribution in southeastern Canada. Population trends are downward in eastern Canada and possibly so in Alberta (Desgranges and Laporte 1979). The night-heron first expanded its range into Alberta in 1958 (Salt and Salt 1976). Wolford and Boag (1971) noted that night-herons have used numerous deep wetlands established by Ducks Unlimited Canada. Both heron and night-heron species are vulnerable to land-clearing, drainage and human disturbance.

Nine Great Blue Heron colonies are nationally important with more than 100 nests (up to a maximum of 350 nests at Sugar Island in Lake Winnipegosis, Manitoba); 37 colonies are regionally important with 30 to 100 nests; and 13 colonies are locally important with fewer than 30 nests.

Black-crowned Night-Heron colonies with more than 100 nests are nationally important (one site with 250 nests, Marshy Point, Manitoba); four sites with 20 to 100 nests (or slightly over 100 nests for old records) are regionally important; and eight sites with fewer than 20 nests or breeding pairs are locally important.

Egrets, colonial birds usually breeding with herons, are not considered in this report. Great Egret and Cattle Egret breed in a few locations in the southern Prairie provinces, but their occurrence is irregular. Egret breeding sites add to the importance of sites used by other migratory bird species.

Gulls and Terns

Eleven species of gulls and terns are colonial breeders of the Prairie provinces. According to Godfrey (1986) their distributions are as follows:

- extensive southern distribution in Canada, including most of the Prairie provinces: ***Ring-billed Gull, Common Tern, Black Tern***;
- extensive northern distribution in Canada: ***Bonaparte's Gull, Herring Gull, Mew Gull, Arctic Tern***;
- widely distributed, locally occurring in mid-latitudes world-wide: ***Caspian Tern***;
- primarily distributed in prairie Canada (generally the eastern one-half of Alberta, central and southern Saskatchewan, and the southwestern one-third of Manitoba): ***Franklin's Gull, California Gull, Forster's Tern***.

Within the Prairie provinces, the Mew Gull and Arctic Tern do not occur in significant numbers, for they are at the periphery of their ranges.

Nesting habits of gulls and terns are of three types: the "white-headed gulls" (Ring-billed, California and Herring) and Common Terns often nest in mixed-species colonies, primarily on low treeless islands; the Bonaparte's Gull nests in the tops of spruce trees near waterbodies; and, the Franklin's Gull, Forster's Tern and Black Tern nest in marsh vegetation. (The Franklin's Gull often nests in association with the Eared Grebe.)

Island-nesting species have increased over the last decades with reduced persecution at colony sites and adaptation to food supplies such as garbage dumps associated with human settlements. Island-nesters likely benefit from the stabilized water levels of many waterbodies (Koonz and Rakowski 1985).

The colonial *tree-nesting* Bonaparte's Gull is the least well known. It is vulnerable to forestry practices and disturbance, but generally seems to have a reasonable amount of habitat at present. We are unable to identify any priority breeding sites for this species.

Marsh-nesting species are vulnerable to human activities, such as: disturbance, intensive cultivation to shorelines of waterbodies exposing colonies to increased mammalian predation, stabilized water levels resulting in stagnation of marshes, drainage of marshes for agriculture resulting in habitat loss, and use of pesticides having a substantial impact on primary food species such as insects. Marsh-nesting species may switch colony sites annually in response to water level fluctuations.

Criteria for important breeding sites of gulls and terns vary for different species, considering the ranges in colony size and overall population size (**Table 13**).

Distribution of colonial waterbird breeding habitat is notably widespread throughout the Prairie provinces.

5.2 Staging

Colonial waterbird concentrations - other than breeding colonies - include spring and fall staging, and summer foraging and roosting sites. Sizeable proportions of species' populations include non-breeding immature birds that are often less localized than breeders at nesting colonies. Non-breeding pelicans are wide-ranging and more ephemeral in their use of specific roosting or foraging sites (Brechtel 1981). This is likely an opportunistic adaptation to capitalize upon variable foods and habitat. Such adaptability may be a valuable trait to ensure the sustained survival of a regional population; and, to protect this species, foraging and roosting areas are needed in addition to those near their breeding habitat.

Nesting colonial waterbird populations have a wide range of traditional roosting and foraging areas associated with, but apart from, particular colonies. Such sites can be a significant distance from the colony; for example, pelican foraging sites are at distances up to 70 kilometres from their nesting site (Trottier and Breneman 1976, Ealey 1979).

Important staging areas for colonial waterbirds, including summer feeding and loafing areas, are waterbodies apart from those used for nesting. Specific criteria vary by species, using maximum recorded numbers of birds and taking into account differences in the population size (**Table 14**). Staging sites are, however, generally concentrated in the same extensive areas as breeding colonies (Figure 9 and **Figure 10**).

There are 12 nationally important, 25 regional, and 175 local colonial waterbird concentrations, identified by species, on 135 different sites (12-N; 21-R; 102-L) within 95 habitat subregions of the Prairie provinces (**Table 15**). The importance ratings in Figure 10 are based on the highest rating of any individual species at any site within the habitat subregion.

Table 13. Criteria for, and numbers of important sites for breeding concentrations of species of gulls and terns.

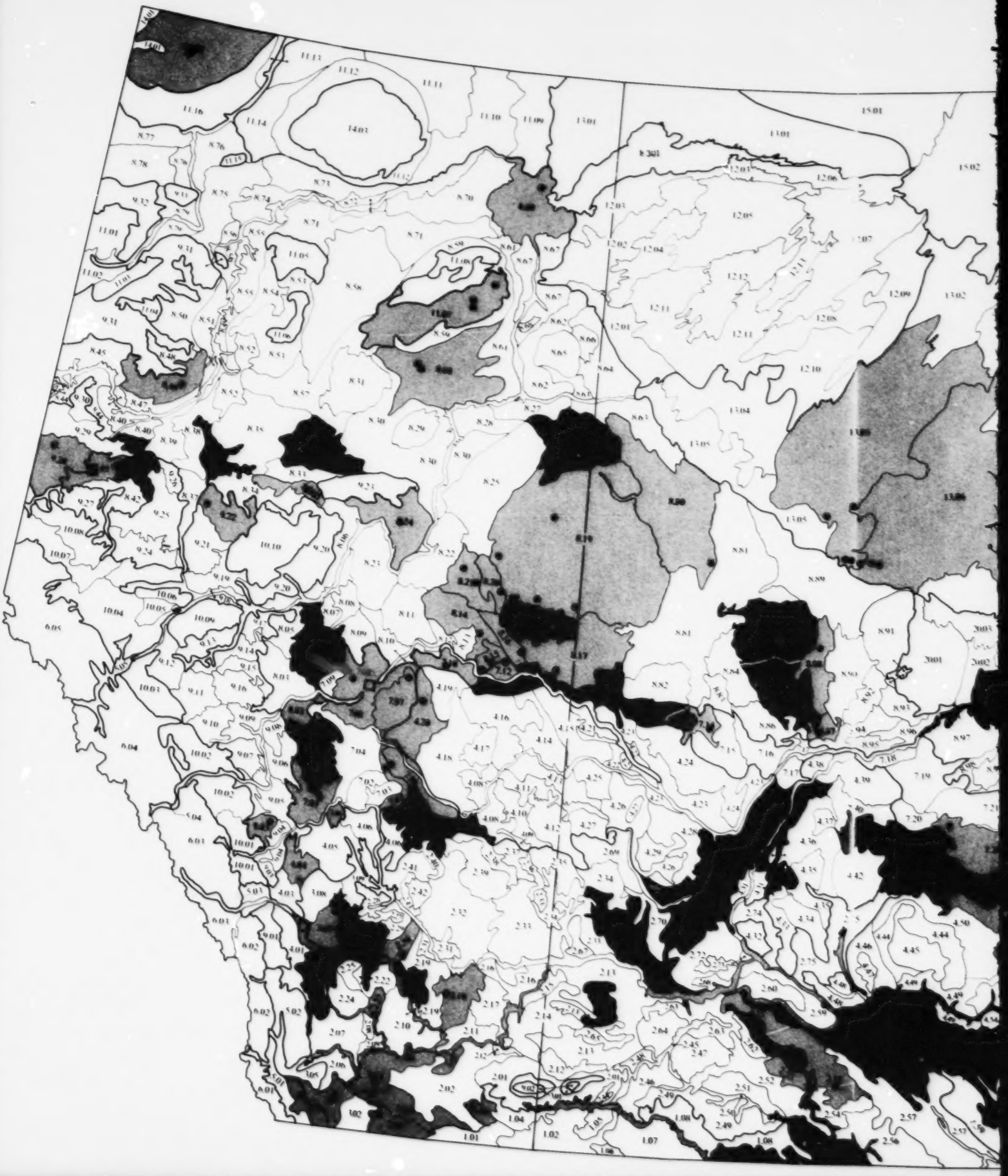
Species	Ratings	Sites
Ring-billed Gull (RBGU):	N - >3000 nests	5
	R - 500 to 3000 nests	20
	L - 20 to < 500 nests	13
California Gull (CAGU):	N - >2000 nests	5
	R - 500 to 2000 nests	5
	L - 10 to < 500 nests	17
Herring Gull (HEGU):	N - > 200 nests	3
	R - 50 to 200 nests	8
	L - < 50 nests	12
Common Tern (COTE):	N - >400 nests	2
	R - 100 to 400 nests	12
	L - < 100 nests	21
Bonaparte's Gull (BOGU):	L - probable or confirmed colonies: not enough data	0
Franklin's Gull (FRGU):	N - >3000 nests	3
	R - 500 to 3000 nests	8
	L - 20 to < 500 nests (or breeding pairs)	11
Forster's Tern (FOTE):	N - >350 nests	2
	R - 100 to 350 nests	3
	L - < 100 nests (or breeding pairs)	8
Caspian Tern (CATE)++	N - >50 nests	
	R - 10 to 50 nests	
	L - < 10 nests (or pairs)	
Black Tern (BLTE):	N - >50 nests	5
	R - 20 to 50 nests	6
	L - < 20 nests (or pairs)	3

++ Caspian Tern is discussed as a "Rare" species in Chapter 6.0, page 94.

Table 14. Criteria for, and numbers of important sites for non-breeding concentrations of species of colonial waterbirds.

Species	Importance ranking (number of individual birds)		
	N ***	R **	L *
Western Grebe (WEGR)	>1500	500 to 1500	50 to < 500
Sites:	-2-	-2-	-17-
Eared Grebe (EAGR)	>5000	1000 to 5000	100 to <1000
Sites:	0	0	-12-
Red-necked Grebe (RNGR)	> 500	300 to 500	50 to < 300
Sites:	-1-	-1-	-8-
Unidentified Grebe	>5000	1000 to 5000	100 to <1000
Sites:	0	0	-1-
Amer. White Pelican (AWPE)◊	>1000	500 to 1000	50 to < 500
Sites:	-3-	-5-	-55-
D-cr Cormorant (DCCO)•	>1000	500 to 1000	50 to < 500
Sites:	0	-1-	-16-
Great Blue Heron (GBHE)	> 100	30 to 100	11 to < 30
Sites:	0	-1-	-7-
B-crowned N-Heron (BCNH)Δ	> 100	30 to 100	11 to < 30
Sites:	-1-	-4-	-8-
Ring-billed Gull (RBGU)	>8000	2000 to 8000	500 to <2000
Sites:	0	0	-7-
California Gull (CAGU)	>8000	2000 to 8000	500 to <2000
Sites:	-1-	0	-3-
Common Tern (COTE)	> 500	200 to 500	50 to < 200
Sites:	0	0	-9-
Bonaparte's Gull (BOGU)	> 500	200 to 500	50 to < 200
Sites:	0	-3-	-4-
Franklin's Gull (FRGU)	>5000	2000 to 5000	500 to <2000
Sites:	-4-	-5-	-6-
Black Tern (BLTE)	> 500	200 to 500	50 to < 200
Sites:	0	-1-	-9-
Unidentified Gull/Tern	>8000	2000 to 8000	500 to <2000
Sites:	0	-2-	-12-

◊ American White Pelican
• Double-crested Cormorant
Δ Black-crowned Night-Heron



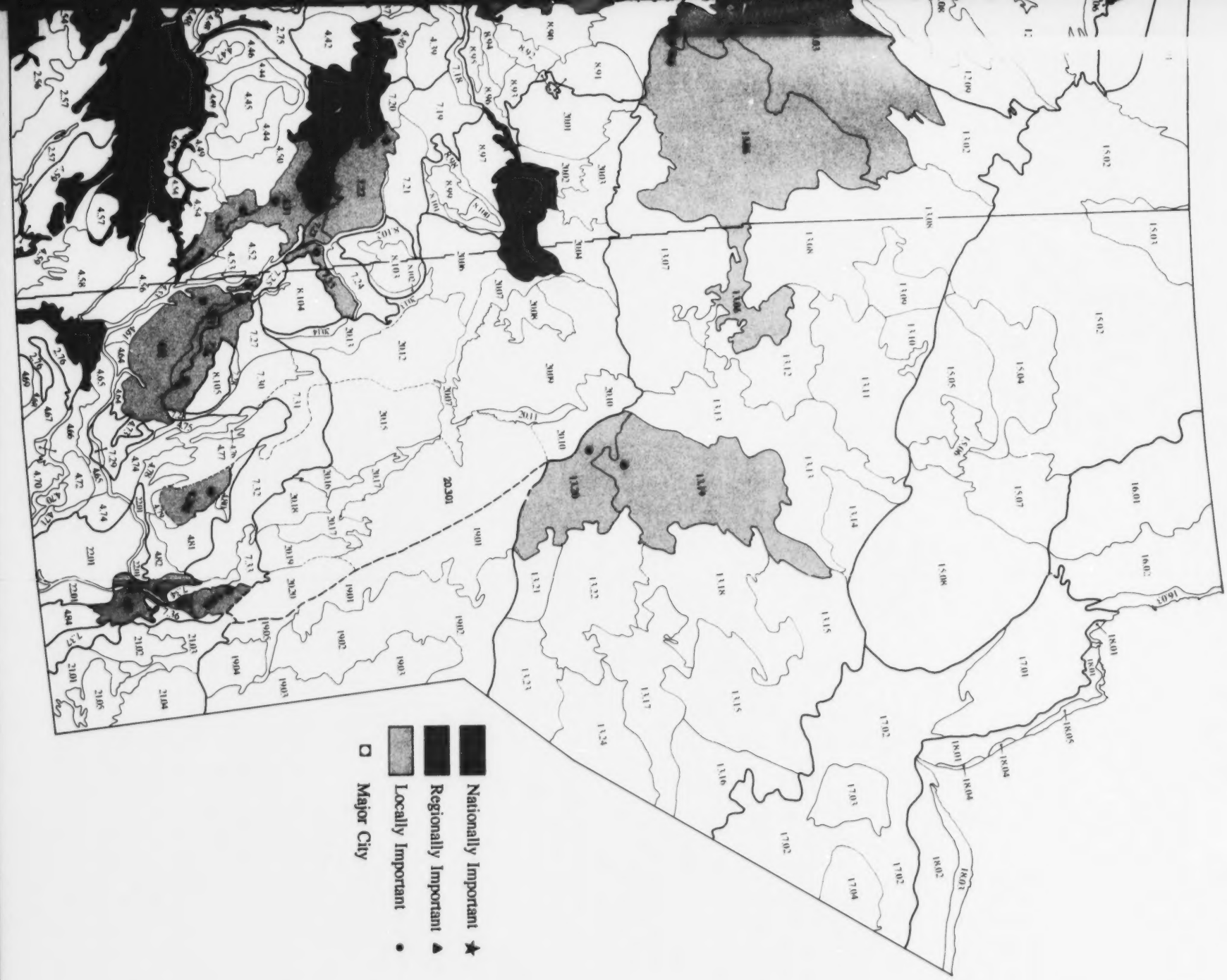


Fig. 10 Staging sites or summer concentration areas (other than breeding colonies) of colonial waterbirds

Table 15. Non-breeding concentrations of colonial waterbirds.*

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species**										
				WEAN-GGGGRRRR	AD-WCPEO	GBBCHNEH	RBAGUU	CHAGUU	CBEGUU	FOOTUU	FROGUU	FOLTUU	B-GT/EET	
1.03	Alta	687	PAKOWKI LAKE	L	- - - - -	- -	-	-	-	-	-	-	-	-
1.09	Sask	3334	FIFE LAKE	-	- - - - -	- R	-	-	-	-	-	-	-	-
1.09	"	"	"TWIN VALLEY"	-	L - - - -	- -	-	-	-	L	-	-	-	-
1.201	Sask	1373	MIDDLE CREEK RES.	-	- - - - L	- -	-	-	-	-	-	-	-	-
1.201	"	"	NEWTON LAKE	-	- - - - -	- -	-	-	-	-	-	-	-	L
2.03	Alta	3305	STIRLING LAKE	-	- - - - L	- -	-	-	-	-	-	-	-	-
2.03	"	"	TABER LAKE	-	L - - - -	- -	-	-	-	-	-	-	-	-
2.04	Alta	2209	MILK RIVER RIDGE RES.	-	- - - L -	- -	-	-	-	-	-	-	-	-
2.05	Alta	1600	"KNIGHT RANCH" RES.	-	- - - L -	- -	-	-	-	-	-	-	-	-
2.18	Alta	2521	LOUISIANA LAKES	-	- - - L -	- -	-	-	-	-	-	-	-	-
2.20	Alta	1090	LAKE NEWELL	R	- - - N -	- -	-	-	-	-	-	-	-	-
2.201	Alta	860	"COALDALE CROSSING"	-	- - - L -	- -	-	-	-	-	-	-	-	-
2.21	Alta	309	LITTLE BOW LAKE RES.	-	- - - L -	- -	-	-	-	-	-	-	-	-
2.210	Sask	1312	BUFFALO POUND LAKE	L	- - - L -	- -	L	-	-	-	-	L	-	L -
2.210	"	"	NICOLLE FLATS	-	- - - L -	- L	-	-	-	-	-	L	-	-
2.23	Alta	850	MCGREGOR LAKE	-	- - - N -	- -	-	-	-	-	-	-	-	-
2.26	Alta	1374	EAGLE LAKE	-	L - - - -	- -	L	-	-	L	-	-	-	-
2.26	"	"	NAMAKA LAKE	N	- - - L -	- -	-	-	-	-	-	-	-	-
2.30	Alta	1053	BARKENHOUSE LAKE	-	- - - L -	L -	-	-	-	-	-	L	-	-
2.301	Sask	1431	STEWART VALLEY AREA	-	- - - L -	- -	-	-	-	-	-	-	-	-
2.302	Sask	387	LAST MTN. LAKE /NORTH	-	- - - - L	- -	-	-	-	-	-	-	-	L
2.302	"	"	LAST MTN. LAKE /SOUTH	-	- - - L L	- -	-	-	-	-	-	-	-	-
2.53	Sask	1838	TWELVE MILE LAKE	-	- - - R -	- -	-	-	-	-	-	-	-	-
2.55	Sask	5832	SCOTTIE LAKE	-	L - - L L	- -	-	-	-	-	-	-	L	-
2.58	Sask	7992	WASCANA LAKE	-	- - - L -	- -	-	-	-	-	-	N	-	L -
2.61	Sask	1699	OLD WIVES LAKE	-	- - - - -	- -	-	-	-	-	-	-	-	R
2.66	Sask	1419	INGEBRIGHT LAKE	-	- - - - -	- -	-	-	-	-	-	N	-	-
2.68	Sask	5771	CUTBANK LAKE	-	- L - - -	- -	-	-	-	-	-	R	-	-
2.68	"	"	SNIPE LAKE	-	- L - - -	- -	-	-	-	-	-	-	-	-
2.71	Sask	6528	GOOSE LAKE	-	- - - - -	- -	-	-	-	-	-	R	-	-
3.03	Alta	1651	ST. MARY RESERVOIR	-	L - - - -	- -	-	-	-	L	-	-	-	-
3.04	Alta	1033	WATERTON RESERVOIR	-	L - - - -	- -	-	-	-	L	-	-	-	-
3.07	Alta	1402	BRUCE LAKE	L	- - - - L	L -	-	-	-	-	L	-	L	L -
3.07	"	"	TEXAS/IRRICANA LAKES	L	- - - - -	- -	-	-	-	-	-	-	-	-
4.02	Alta	718	IRRICANA RESERVOIR	L	- - - - -	- -	-	N	-	-	-	-	-	-
4.02	"	"	IRRICANA SLOUGHS	-	- - - - L	L L	-	-	-	-	-	-	-	-
4.04	Alta	1308	NIER RESERVOIR	-	- L - - -	- -	-	-	-	-	-	-	-	-
4.07	Alta	3964	SHOOTING LAKE	-	- - - - -	- R	-	-	-	-	-	-	-	-
4.07	"	"	SLOUGH W. OF STETTLER	-	- - - - -	- L	-	-	-	-	-	-	-	-
4.20	Alta	2853	BEAVERHILL LAKE	L	- - - - -	- L	-	-	-	-	-	-	-	-

Table 15. (continued...2) Non-breeding concentrations of colonial waterbirds.+

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species++																
				WEGR	EAGR	RNGR	--GR	AWPE	DCCO	GBHE	BCNH	RBGU	CAGU	HEGU	COTE	BOGU	FRGU	FOTE	BLTE	-G/T
4.206	Sask	1986	CROOKED LAKE	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	L
4.206	"	"	ECHO LAKE	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
4.206	"	"	KATEPWA LAKE	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.206	"	"	MISSION LAKE	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
4.206	"	"	PASQUA LAKE	-	-	-	-	R	-	-	-	-	-	-	-	-	-	-	-	-
4.206	"	"	VALEPORT MARSH	-	-	-	-	L	-	-	-	L	-	-	-	-	-	-	-	-
4.206	"	"	"NORTH VALLEY RD."	-	-	-	-	L	-	-	-	-	-	-	-	-	R	-	-	-
4.209	Sask	249	E. OF ROCHE PERCEE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L	-
4.30	Sask	7509	BLACKSTRAP RESERVOIR	-	-	-	-	-	-	-	-	-	-	-	-	-	N	-	-	-
4.30	"	"	PELICAN LAKE	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-
4.301	Man	2231	LAKE MANITOBA /S. OF NARROWS	-	-	-	-	L	L	-	-	-	-	-	-	-	-	-	-	-
4.41	Sask	8299	CHARRON/EDOUARD LKS.	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
4.41	"	"	LENORE LAKE	-	-	-	-	-	-	-	R	-	-	-	-	-	-	-	-	-
4.43	Sask	1755	LITTLE QUILL LAKE	-	-	-	-	-	-	-	R	-	-	-	-	-	-	-	-	-
4.51	Sask	3387	HORSESHOE LAKE/MARSH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L	-
4.52	Sask	5459	YORKTON LAKES	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
4.55	Sask	10758	GOOSEBERRY LAKE	-	-	-	-	L	L	-	N	-	-	-	-	-	-	-	-	-
4.60	Man	2786	OAK/PLUM LAKES	-	-	-	-	-	-	R	-	-	-	-	-	-	-	-	-	-
4.62	Man	7149	ST. MARY'S LAKE	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.63	Man	1575	PLEASANT VALLEY RES.	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
4.83	Man	2853	RED R./LOCKPORT AREA	-	-	-	-	L	L	-	-	-	-	-	-	-	-	-	-	-
7.01	Alta	3018	GULL LAKE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L
7.05	Alta	912	RED DEER LAKE	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.06	Alta	1806	FERINTOSH LAKES	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-
7.07	Alta	2277	ASTOTIN LAKE	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-
7.08	Alta	4627	BIG LAKE	-	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	L
7.10	Alta	1331	WHITFORD/RUSH LKS.	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
7.11	Alta	1015	PLAIN LAKE	-	L	-	-	-	-	-	-	-	-	-	-	R	-	-	-	-
7.11	"	"	SLAWA CREEK	-	-	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-
7.12	Alta	600	LAC SAINT CYR	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.13	S-A	4940	TURTLE LAKE	-	-	-	-	-	-	-	-	L	L	-	L	L	R	-	L	-
7.14	Sask	1024	WITCHEKAN LAKE	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
7.22	Sask	5147	GREENWATER LK. PROV. PK.	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-
7.23	S-M	2285	"LAC LA COURSE PLAIN"	-	-	-	-	-	-	-	-	-	L	-	-	-	L	-	-	-
7.26	Man	2946	PROVEN LAKE/MARSH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	L	-
7.301	Man	1353	LK. WINNIPEG /SOUTH	-	-	-	-	L	L	-	-	-	-	-	-	-	-	-	-	-
7.35	Man	306	NETLEY MARSH	-	-	-	-	L	L	-	-	-	-	-	-	-	-	-	-	-
8.01	Alta	2654	PIGEON LAKE	L	-	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.02	Alta	1075	BUCK LAKE	-	-	L	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 15. (continued...3) Non-breeding concentrations of colonial waterbirds.+

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species++ WEREAN-WCGGGGPCRRRREO	GBBCHNEH	RCHCBFFB-BAEOOROLGGGTGGTT/UUUEUUEET
8.04	Alta	3831	LAC STE ANNE	R-L---	L-	----------
8.04	"	"	THUNDER LAKE	--L---	--	----------
8.14	Alta	2980	GARNER LAKE	----L-	--	----------
8.15	Alta	762	LAC SANTE	-----L	--	----------
8.15	"	"	LOWER THERIEN LKS.	----L-	--	----------
8.16	Alta	1180	KEHIWIN LAKE	----L-	--	----------
8.17	S-A	6278	FROG LAKE	----L-	--	----------
8.17	"	"	MURIEL LAKE	----L-	--	----------
8.18	Alta	2963	JESSIE LAKE	------	--	---------R
8.18	"	"	MOOSE LAKE	L---L-	--	----------
8.19	A-S	27523	COLD LAKE	----L-	--	----------
8.19	"	"	HEART LAKE	----L-	--	----------
8.19	"	"	MARGUERITE LAKE	----L-	--	----------
8.19	"	"	WINEFRED LAKE	----L-	--	----------
8.20	Alta	1227	PINEHURST LAKE	----L-	--	----------
8.21	Alta	2188	BEAVER LAKE	----L-	--	---L-----
8.21	"	"	LAC LA BICHE	-L--LL	--	----------
8.24	Alta	3852	CALLING LAKE	----L-	--	----------
8.26	A-S	5621	GIPSY LAKE	----R-	--	----------
8.302	Sask	483	TOBIN LAKE	----N-	--	L---R----
8.303	Alta	1133	LESSER SLAVE LAKE	----L-	--	----------
8.32	Alta	3886	UTIKUMA LAKE	L---RR	L-	----------
8.36	Alta	1724	HORSE LK./BUFFALO BAY	------	L-	LL---L---
8.36	"	"	KIMIWAN LAKE	----L-	--	----RN---
8.36	"	"	WINAGAMI LAKE	L---L-	--	----------
8.41	Alta	1978	KLESKUN LAKE	------	--	-----R---
8.43	Alta	1431	BEAR LAKE	L--L--	--	----------
8.43	"	"	HERMIT LAKE	-L----	--	----------
8.46	Alta	3200	CARDINAL LAKE	L-L---	--	----------
8.60	Alta	8524	GREW LAKE	----L-	--	----------
8.60	"	"	MINK LAKE	----L-	--	----------
8.69	Alta	5587	PEACE-ATHABASCA DELTA	LL----	--	L--L-----
8.80	Sask	11372	BEAUVAL MARSH	----L-	--	----------
8.85	Sask	10351	KINGSMERE LAKE	--R---	--	----------
8.87	Sask	776	CHEAL/RUSSELL LAKES	------	-L	----------
8.88	Sask	2369	MONTREAL LAKES	L-----	--	---L-----
9.03	Alta	1407	BURNTSTICK LAKE	------	--	----L----
9.22	Alta	2466	SNIPE LAKE	L-----	--	----------
9.28	Alta	3133	SINCLAIR LAKE	L-----	--	----------
11.07	Alta	6734	EAGLENEST LAKE	----L-	--	----------

Table 15. (continued...4) Non-breeding concentrations of colonial waterbirds.*

Unit No.	Prov	Area (km²)	Site	Colonial waterbird species** WERGRR	EANGRR	-ADGGPR	-WCGPEO	GBHNEH	BC	RCHCBFFB-BAEOOROLGGGGTGGTT/UUUEUUEET
11.07	Alta	"	GARDINER LAKES	-	-	-	-	L	-	- - - - - - - - - -
11.07	"	"	N. GARDINER LAKES	-	-	-	-	L	-	- - - - - - - - - -
13.03	Sask	28779	CHURCHILL LAKE	-	-	-	-	-	-	- - - - - - - - - L
13.03	"	"	EWEN BAY	-	-	-	-	-	-	- - - - - - - - - L
13.03	"	"	MCINTOSH LAKE	-	-	-	-	-	-	- - - - - - - - - L
13.03	"	"	MOORE ISLAND	-	-	-	-	-	-	- - - - - - - - - L
13.03	"	"	STONY NARROWS	-	-	-	-	-	-	- - - - - - - - - L
13.06	S-M	34799	HUNTER BAY	-	-	-	-	-	-	- - - - - - - - - L
13.06	"	"	N. LAC LA RONGE	-	-	-	-	-	-	- - - - - - - - - L
13.19	Man	19285	NELSON R./JENPEG AREA	-	-	-	-	L	-	- - - - - - - - - -
13.20	Man	8628	KISKITTO LAKE	-	-	-	-	L	-	- - - - - - - - - -
14.02	Alta	10096	BISTCHO LAKE	-	-	-	-	-	-	- - - L L L - L -
20.05	S-M	6134	BIGSTONE RAPIDS	-	-	-	-	R	L	- - - - - - - - - -
20.05	"	"	N. MCGREGOR LAKE	-	-	-	-	-	-	- - - - - - - R -
20.05	"	"	WAPISEW LAKE	-	-	-	-	L	-	- - - - - - - - - -

* N = National importance; R = Regional importance; L = Local importance

** *in sequence*: Western Grebe, Eared Grebe, Red-necked Grebe, grebe sp.; American White Pelican, Double-crested Cormorant; Great Blue Heron, Black-crowned Night-Heron; Ring-billed Gull, California Gull, Herring Gull, Common Tern, Bonaparte's Gull, Franklin's Gull, Forster's Tern, Black Tern, gull/tern sp.

6.0 HABITAT USE BY RARE, THREATENED AND ENDANGERED SPECIES

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC), active since 1977, coordinates preparation and assessment of status reports on Canadian species of concern (Cook and Muir 1984). The Committee includes representatives of federal and provincial government agencies responsible for wild flora and fauna in Canada, and representatives from three non-government organizations (Canadian Nature Federation, World Wildlife Fund Canada, and Canadian Wildlife Federation).

Provincial governments may make independent designations of status; however, the COSEWIC designation is considered the national classification. A list of status designations referring to the degree of threat to a species of concern is prepared annually by COSEWIC and presented at the Federal-Provincial Wildlife Conference (Keith 1987). For the purposes of this report, only "Rare," "Threatened" and "Endangered" species categories are considered:

Endangered - any indigenous species whose existence in Canada is threatened with imminent extirpation or extinction throughout all or a significant portion of its range.

Threatened - any indigenous species likely to become Endangered in Canada if factors affecting its vulnerability are not reversed.

Rare - any indigenous species that for some reason exists in low numbers or in very restricted areas in Canada and therefore is vulnerable, but is not a Threatened species (for example, it may have specific biological requirements or it may occur at the fringe of its range).

As of 1989, COSEWIC designations for species of the Prairie provinces are as follows:

Endangered species	Threatened species	Rare species
Peregrine Falcon	Ferruginous Hawk	Least Bittern
Greater Prairie Chicken	Burrowing Owl	Trumpeter Swan
Whooping Crane	Loggerhead Shrike	Cooper's Hawk
Piping Plover	Baird's Sparrow	Ross' Gull
Mountain Plover		Caspian Tern
Eskimo Curlew		Great Gray Owl
		Eastern Bluebird

6.1 Breeding

All the above "COSEWIC" species breed within or migrate through the Prairie provinces (World Wildlife Fund 1989). However, insufficient information exists on abundance and distribution of breeding populations of the following species to enable a meaningful comparison of habitat priorities: Greater Prairie Chicken, Eskimo Curlew, Baird's Sparrow, Cooper's Hawk, Great Gray Owl and Eastern Bluebird. Information on these species is urgently required. (Additional comments on Baird's Sparrow are in Chapter 8.0.) Surveys of the other species

are believed sufficient to evaluate importance of specific habitat subregions to **threatened species** as a group (threatened species is a generic term used in this report for *ANY* of the *Rare*, *Threatened* or *Endangered species*).

Breeding sites of **threatened species** are varied, including isolated nest trees on otherwise open grasslands used by the Ferruginous Hawk, holes in pastures used by the Burrowing Owl, or northern lakes with beaver lodges used by the Trumpeter Swan. Comparable mapping of habitat priorities is difficult, given the different quality and thoroughness of surveys undertaken to date. The relative abundance of breeding sites for each species within the subregion units is a composite of species' value for the overall habitat importance rating.

Figure 11 illustrates those habitat subregions with at least one locally important site, or overall, that are designated at least locally important for one Rare, Threatened or Endangered species. It identifies the subregions based on the **highest rating of any species**. Furthermore, **Table 16** identifies the ratings assigned to each species collective breeding sites in the habitat subregions.

The ***Peregrine Falcon*** (*anatum* subspecies) consistently breeds within the Prairie provinces only in northeastern Alberta. In the 1950s and 1960s, this subspecies underwent a significant decline primarily due to accumulated organochlorine pesticides causing reproductive failure (Erickson *et al.* 1988).

During a 1975 range-wide survey in Canada, four occupied nest sites (of 48 national sites) were in the Prairie provinces: comparably, by 1980, there were nine occupied nest sites (of Canada's 71 known sites) (Erickson *et al.* 1988).

Peregrine Falcons, breeding in the wild, currently use small portions of three habitat subregions in northeastern Alberta (13.01 Tazin River Plain, 8.211 Lower Peace River, and 8.69 Peace-Athabasca Delta), all classified as nationally important habitats. Some sites in more southern locations, primarily on cliffs along major rivers, are also periodically occupied by falcons. In 1989, one pair of Peregrines is believed to have nested in the forest ranges of the Rockies (S. Brechtel, Alta. F. and Wildl., *pers. comm.*). Summer records of other Peregrines at three locations in the Rockies indicate other breeding pairs (G. Holroyd, CWS, *pers. comm.*).

Recently, Peregrines have established one breeding territory in each of the cities of Edmonton, Calgary and Winnipeg. Furthermore, non-breeding falcons are summer residents of Saskatoon and Regina. Those in northeastern Alberta are considered the historic wild population; however, the originally captive-reared pairs in cities are important in the species recovery effort. Chicks fostered under "city pairs" may subsequently breed in the wilds of northern Alberta (Erickson *et al.* 1988) and elsewhere. In 1989, for the first time, one pair of Peregrines successfully bred in the city of Winnipeg (A. Didiuk, CWS, *pers. comm.*).

The breeding segment of the ***Whooping Crane*** population nests in northern Wood Buffalo National Park (WBNP) near the Northwest Territories-Alberta border. Breeding Whooping Cranes, and most of the non-breeders that also summer in the north, migrate through the Prairie provinces and central United States to the

Fig. 11 Habitats of breeding populations of threatened species

Table 16. Habitats of breeding threatened species.*

Unit No.	Prov	Area (km²)	Habitat subregion	Breeding threatened species**										
				PEFA	WHCR	PIPL	MOPL	FEHA	BUOW	LOSH	LEBI	TRSW	ROGU	CATE
1.01	Alta	1649	Milk River Plain	-	-	-	N	L	L	-	-	-	-	-
1.02	S-A	3720	Sage Creek Plain	-	-	-	N	R	R	L	-	-	-	-
1.03	Alta	687	Pakowki Plain	-	-	-	-	L	L	-	-	-	-	-
1.04	A-S	1403	Lodge Benchland	-	-	-	-	L	-	L	-	-	-	-
1.05	Sask	887	Outlaw Coulee Upland	-	-	-	-	L	R	-	-	-	-	-
1.07	Sask	3056	Frenchman River Plateau	-	-	-	-	L	L	-	-	-	-	-
1.08	Sask	3809	Wood Mountain Plateau	-	-	-	-	L	L	-	-	-	-	-
1.09	Sask	3334	Poplar River Plain	-	-	-	-	R	-	-	-	-	-	-
1.201	Sask	1373	Frenchman R./Alta to U.S.A.	-	-	-	-	R	-	L	-	-	-	-
2.01	S-A	4668	Cypress Hills Benchland	-	-	-	-	L	-	-	-	-	-	-
2.02	Alta	5992	Chin Plain	-	-	-	-	-	L	-	-	-	-	-
2.03	Alta	3305	Fincastle Plain	-	-	-	-	-	L	-	-	-	-	-
2.04	Alta	2209	Verdigris Plain	-	-	-	-	-	L	-	-	-	-	-
2.05	Alta	1600	Milk River Upland	-	-	-	-	L	L	-	-	-	-	-
2.06	Alta	1256	Three River Plain	-	-	-	-	-	L	-	-	-	-	-
2.07	Alta	2539	Keho Lake Plain	-	-	-	-	-	L	-	-	-	-	-
2.08	Alta	339	Travers-Coaldale Plain	-	-	-	-	-	L	-	-	-	-	-
2.09	Alta	333	Picture Butte Plain	-	-	-	-	-	L	-	-	-	-	-
2.10	Alta	2889	Enchant Plain	-	-	-	-	L	L	-	-	-	-	-
2.11	Alta	1347	Suffield South Plain	-	-	-	-	-	L	-	-	-	-	-
2.12	S-A	1514	Medicine Hat Plain	-	-	-	-	L	L	-	-	-	-	-
2.13	S-A	7961	Bigstick Lake Plain	-	-	L	-	L	L	-	-	-	-	-
2.14	S-A	4057	Schuler Upland	-	-	L	-	-	-	-	-	-	-	-
2.16	Alta	1508	Middle Sand Hills	-	-	-	-	-	L	L	-	-	-	-
2.17	Alta	1736	Rainy Hills	-	-	-	-	-	L	-	-	-	-	-
2.18	Alta	2521	Kininvie Plain	-	-	-	-	L	L	L	-	-	-	-
2.19	Alta	2158	Matzhiwin Plain	-	-	-	-	-	L	L	-	-	-	-
2.20	Alta	1090	Lake Newell Plain	-	-	L	-	-	L	-	-	-	-	-
2.201	Alta	860	Oldman River	-	-	-	-	L	-	-	-	-	-	-
2.202	Alta	392	Little Bow R./Mosquito Cr. to Oldman R.	-	-	-	-	L	-	-	-	-	-	-
2.203	Alta	775	Bow R./Calgary to Bassano	-	-	-	-	L	-	-	-	-	-	-
2.204	Alta	542	Bow R./Bassano to mouth	-	-	-	-	N	-	-	-	-	-	-
2.206	Alta	42	Rosebud R./Rosebud area	-	-	-	-	L	-	-	-	-	-	-
2.207	Alta	1188	Red Deer R./Drumheller to S. Sask R.	-	-	-	-	L	-	-	-	-	-	-
2.208	Sask	978	S. Sask R./Red Deer R. to Lk. Dief.	-	-	-	-	L	L	-	-	-	-	-
2.210	Sask	1312	Qu'Appelle R./Lk. Dief. to Lumsden	-	-	-	-	-	R	-	-	-	-	-

Table 16. (continued...2) Habitats of breeding threatened species.+

Unit No.	Prov	Area (km²)	Habitat subregion	Breeding threatened species++										
				PEFA	WHCR	PIPL	MOPL	FEHA	BUOW	LOSH	LERI	TRBW	ROSU	CAGE
2.211	Sask	437	Souris R./upper to Bienfait	-	-	L	-	L	L	-	-	-	-	-
2.212	Sask	568	Eagle Cr./Scott-Zealandia	-	-	L	-	L	L	-	-	-	-	-
2.21	Alta	409	Lomond Upland	-	-	-	-	-	L	-	-	-	-	-
2.22	Alta	979	Majorville Upland	-	-	-	-	-	L	-	-	-	-	-
2.24	Alta	1318	Little Bow Plain	-	-	-	-	-	L	-	-	-	-	-
2.25	Alta	627	Arrowwood Creek Plain	-	-	-	-	-	L	-	-	-	-	-
2.26	Alta	1374	Crowfoot Plain	-	-	-	-	-	L	-	-	-	-	-
2.28	Alta	757	Rosebud-Drumheller Plain	-	-	-	-	-	L	-	-	-	-	-
2.301	Sask	1431	Lake Diefenbaker	-	-	N	-	L	L	-	-	-	-	-
2.302	Sask	387	Last Mountain Lake	-	-	N	-	L	L	-	-	-	-	L
2.31	Alta	917	Lower Berry Creek Plain	-	-	-	-	L	R	-	-	-	-	-
2.32	Alta	6336	Richdale-Cessford Plain	-	-	-	-	N	L	-	-	-	-	-
2.33	A-S	7702	Oyen Upland	-	-	-	-	L	-	L	-	-	-	-
2.34	S-A	3331	Sibbald Plain	-	-	-	-	L	L	L	-	-	-	-
2.35	S-A	1706	Neutral Upland	-	-	-	-	L	L	-	-	-	-	-
2.37	Alta	891	Monitor Hills	-	-	L	-	-	-	-	-	-	-	-
2.39	Alta	2720	Sounding Creek Plain	-	-	-	-	N	L	-	-	-	-	-
2.40	Alta	591	Rumsey Upland	-	-	-	-	L	-	-	-	-	-	-
2.41	Alta	1693	Chain Lakes Plain	-	-	R	-	-	L	-	-	-	-	-
2.42	Alta	624	Hand Hills Upland	-	-	R	-	L	L	-	-	-	-	-
2.43	Alta	501	East Coulee Plain	-	-	-	-	L	L	-	-	-	-	-
2.45	Sask	1358	Swift Current Creek Valley	-	-	-	-	-	L	L	-	-	-	-
2.46	Sask	1962	Shaunavon Plain	-	-	-	-	-	L	-	-	-	-	-
2.47	Sask	2429	Rush Lake Creek Plain	-	-	-	-	-	-	L	-	-	-	-
2.48	Sask	466	Bridge Creek Upland	-	-	-	-	-	-	L	-	-	-	-
2.49	Sask	4023	Wood River Plain	-	-	-	-	-	L	-	-	-	-	-
2.50	Sask	736	Pinto-Lynthorpe Creek Valley	-	-	-	-	L	R	-	-	-	-	-
2.51	Sask	1883	Lower Wood River Plain	-	-	-	-	L	L	-	-	-	-	-
2.52	Sask	3824	Notukeu Creek Plain	-	-	-	-	-	L	-	-	-	-	-
2.53	Sask	1838	Willow Bunch-Big Muddy Valley	-	-	R	-	L	L	-	-	-	-	-
2.54	Sask	1431	Amulet Hills	-	-	-	-	-	L	-	-	-	-	-
2.55	Sask	5832	Missouri Coteau	-	-	L	-	L	L	L	-	-	-	-
2.56	Sask	3950	Missouri Coteau South	-	-	-	-	-	L	-	-	-	-	-
2.57	Sask	7902	Long Creek Plain	-	-	-	-	R	R	L	-	-	-	-
2.58	Sask	7992	Regina Plain	-	-	-	-	-	N	-	-	-	-	-
2.59	Sask	1943	Tuxford Plain	-	-	-	-	L	N	-	-	-	-	-
2.60	Sask	1575	Eyebrow Hills Upland	-	-	-	-	-	R	L	-	-	-	-
2.61	Sask	1699	Old Wives Lake Basin	-	-	N	-	L	L	L	-	-	-	-
2.62	Sask	654	Shamrock Upland	-	-	-	-	-	L	L	-	-	-	-
2.63	Sask	2630	Prairie View Hills	-	-	-	-	-	L	L	-	-	-	-

Table 16. (continued...3) Habitats of breeding threatened species.+

Unit No.	Prov	Area (km²)	Habitat subregion	Breeding threatened species++											
				PEFA	WHCR	PIPL	MOPL	FEHA	BUOW	LOSH	LERI	TRSW	ROGU	CATE
2.64	Sask	1981	Antelope Lake Plain	-	-	-	-	L	R	R	-	-	-	-
2.65	Sask	721	Bigstick Lake Sandhills	-	-	-	-	R	L	-	-	-	-	-
2.66	Sask	1419	Great Sandhills	-	-	-	-	L	L	L	-	-	-	-
2.67	Sask	639	Mantario Plain	-	-	-	-	L	L	L	-	-	-	-
2.68	Sask	5771	Kindersley Plain	-	-	-	-	L	N	L	-	-	-	-
2.69	Sask	2427	Tramping Lake Plain	-	-	L	-	L	-	-	-	-	-	-
2.70	Sask	1570	Bad Hills Upland	-	-	-	-	L	L	-	-	-	-	-
2.71	Sask	6528	Eagle Creek Plain	-	-	L	-	-	N	R	-	-	-	-
2.72	Sask	3329	Coteau Hills	-	-	L	-	-	L	R	-	-	-	-
2.73	Sask	643	Lucky Lake Plain	-	-	-	-	-	R	L	-	-	-	-
2.74	Sask	1606	Brightwater Creek Plain	-	-	-	-	-	N	N	-	-	-	-
2.75	Sask	4740	Upper Qu'Appelle Plain	-	-	L	-	L	L	L	-	-	-	-
2.76	Man	2703	Boissevain-Hartney Plain	-	-	-	-	L	N	N	-	-	-	-
3.01	S-A	1042	Elkwater Lake Upland	-	-	-	-	-	-	-	-	L	-	-
3.02	Alta	1200	Del Bonita Plain	-	-	-	-	-	L	-	-	-	-	-
3.03	Alta	1651	St. Mary Plain	-	-	-	-	-	L	-	-	-	-	-
3.04	Alta	1033	Waterton Upland	-	-	-	-	-	-	-	-	L	-	-
3.05	Alta	1508	Pincher Plain	-	-	-	-	L	-	-	-	-	-	-
3.06	Alta	2390	Frank Lake Plain	-	-	-	-	L	L	-	-	-	-	-
3.07	Alta	1402	Serviceberry Creek Plain	-	-	-	-	-	L	-	-	-	-	-
3.08	Alta	1769	Rosebud Creek Plain	-	-	-	-	-	L	-	-	-	-	-
4.02	Alta	718	Strathmore Plain	-	-	-	-	-	L	-	-	-	-	-
4.06	Alta	1350	Delburne Upland	-	-	L	-	-	L	-	-	-	-	-
4.10	Alta	1710	Ribstone Plain	-	-	R	-	-	-	-	-	-	-	-
4.11	A-S	1843	Dilberry Plain	-	-	-	-	-	L	-	-	-	-	-
4.12	A-S	2734	Provost Upland	-	-	-	-	L	-	-	-	-	-	-
4.13	A-S	2213	Edgerton Plain	-	-	N	-	-	L	-	-	-	-	-
4.203	Sask	816	S. Sask R./Donovan to Sask R.	-	-	L	-	-	-	-	-	-	-	-
4.206	Sask	1986	Qu'Appelle R./Lumsden to bdry	-	-	-	-	-	L	-	-	-	-	-
4.209	Sask	249	Souris R./Bienfait to U.S.A.	-	-	-	-	L	L	-	-	-	-	-
4.23	Sask	5779	North Saskatchewan R. Plain	-	-	L	-	-	-	-	-	-	-	-
4.24	Sask	5134	Redberry Lake Upland	-	-	R	-	-	-	-	-	-	-	-
4.26	Sask	3507	Cutknife Plain	-	-	L	-	-	-	-	-	-	-	-
4.27	Sask	1570	Cutknife Hills	-	-	-	-	L	-	-	-	-	-	-
4.30	Sask	7509	South Saskatchewan R. Plain	-	-	L	-	-	L	L	-	-	-	-
4.31	Sask	1030	Dundurn Sandhills	-	-	-	-	-	L	N	-	-	-	-
4.32	Sask	981	Hawarden Hills	-	-	-	-	-	R	N	-	-	-	-
4.33	Sask	1704	Kenaston Upland	-	-	-	-	-	R	N	-	-	-	-
4.34	Sask	1843	Allan Hills	-	-	L	-	L	L	L	-	-	-	-
4.35	Sask	1954	Colonsay Plain	-	-	L	-	-	L	L	-	-	-	-

Table 16. (continued...4) Habitats of breeding threatened species.+

Unit No.	Prov	Area (km²)	Habitat subregion	Breeding threatened species++										
				PEFA	WHCR	PIPL	MOPL	FEHA	BUOW	LOSH	LEBI	TRWU	ROSG	CATE
4.37	Sask	534	Hoodoo Lakes Plain	-	-	-	-	-	L	-	-	-	-	-
4.42	Sask	2929	Lanigan Creek Plain	-	-	-	-	-	L	-	-	-	-	-
4.43	Sask	1755	Quill Lakes Basin	-	-	N	-	-	L	-	-	-	-	-
4.46	Sask	2096	Last Mountain Plain	-	-	-	-	-	L	-	-	-	-	-
4.48	Sask	1381	Buffalo Pound Upland	-	-	-	-	-	L	-	-	-	-	-
4.49	Sask	2688	Balcarres Plain	-	-	-	-	-	L	-	-	-	-	-
4.54	Sask	2495	Pheasant Hills Upland	-	-	-	-	-	L	-	-	-	-	-
4.56	S-M	4432	Pipestone Plain	-	-	-	-	-	L	-	-	-	-	-
4.58	S-M	6166	Gainsborough Creek Plain	-	-	-	-	-	L	L	-	-	-	-
4.59	Sask	5980	Souris River Plain	-	-	-	-	L	L	L	-	-	-	-
4.60	Man	2786	Lake Souris Plain	-	-	-	-	R	R	N	-	-	-	-
4.61	Man	733	Arrow River Plain	-	-	-	-	L	-	-	-	-	-	-
4.64	Man	1089	Brandon Plain	-	-	-	-	L	-	-	-	-	-	-
4.65	Man	1939	Brandon Lakes Plain	-	-	-	-	L	L	L	-	-	-	-
4.66	Man	1719	Tiger Hills	-	-	-	-	L	-	-	-	-	-	-
4.67	Man	2529	Boissevain Plain	-	-	-	-	-	R	-	-	-	-	-
4.79	Man	372	Delta Marshes	-	-	L	-	-	-	-	N	-	-	-
4.81	Man	2757	Shoal Lakes Plain	-	-	N	-	-	-	-	-	-	-	-
5.01	Alta	1620	Belly River Upland	-	-	-	-	-	-	-	-	L	-	-
7.03	Alta	691	Buffalo Lake Plain	-	-	R	-	-	-	-	-	-	-	-
7.07	Alta	2277	Cooking Lake Upland	-	-	L	-	-	-	-	-	-	-	-
7.201	Alta	1040	Red Deer R./Raven R. to Drumheller	-	-	-	-	L	-	-	-	-	-	-
7.204	Sask	899	Sask R. + lower N. Sask R.	-	-	L	-	-	-	-	-	-	-	-
7.29	Man	2022	Upper Assiniboine Delta	-	-	-	-	L	L	-	-	-	-	-
7.301	Man	1353	Lake Winnipeg/south 1/4	-	-	L	-	-	-	-	-	-	-	-
7.31	Man	2823	Crane River Plain	-	-	L	-	-	-	-	-	-	-	-
7.36	Man	952	Pine Ridge Plain	-	-	L	-	-	L	-	-	-	-	-
8.211	Alta	2398	Peace R./Ft Vermilion to Peace-Athabasca Delta	N	-	-	-	-	-	-	-	-	-	-
8.301	S-A	8157	Lake Athabasca	-	-	-	-	-	-	-	-	-	-	R
8.41	Alta	1978	Kleskun Plain	-	-	-	-	-	-	-	-	L	-	-
8.42	Alta	1955	Smokey Plain	-	-	-	-	-	-	-	-	L	-	-
8.43	Alta	1431	Clairmount Plain	-	-	-	-	-	-	-	-	N	-	-
8.53	Alta	4417	Buffalo Head Hills	-	-	-	-	-	-	-	-	L	-	-
8.69	Alta	5587	Peace-Athabasca Delta	N	-	-	-	-	-	-	-	-	-	-
8.81	Sask	17620	Beaver River Plain	-	-	-	-	-	-	-	-	-	-	N
9.13	Alta	1393	McLeod River Plain	-	-	-	-	-	-	-	-	L	-	-
9.25	Alta	3819	Sturgeon Lake Plain	-	-	-	-	-	-	-	-	L	-	-
9.27	Alta	2346	Wapiti Plain	-	-	-	-	-	-	-	-	L	-	-

Table 16. (continued...5) Habitats of breeding threatened species.*

Unit No.	Prov	Area (km²)	Habitat subregion	Breeding threatened species**											
				PEFA	WHCR	PIPL	MOPL	FEHA	BUOW	LOSH	LEBI	TRSW	ROGU	CATE
9.28	Alta	3133	Beaverlodge Plain	-	-	-	-	-	-	-	-	N	-	-
9.29	Alta	2610	Saddle Hills	-	-	-	-	-	-	-	-	R	-	-
9.30	Alta	931	Blueberry Plain	-	-	-	-	-	-	-	-	L	-	-
11.06	Alta	1090	Russell Lake Upland	-	-	-	-	-	-	-	-	L	-	-
11.07	Alta	6734	Birch Mountains Upland	-	-	-	-	-	-	-	-	L	-	-
11.11	Alta	5775	Buffalo River Plain	-	N	-	-	-	-	-	-	-	-	-
13.01	S-A	20692	Tazin River Plain	N	-	-	-	-	-	-	-	-	-	-
13.17	Man	10384	God's Lake Plain	-	-	-	-	-	-	-	-	-	-	R
15.05	Man	8959	Big Sand Lake Plain	-	-	-	-	-	-	-	-	-	-	N
18.01	Man	3858	Rupert Creek Lowland	-	-	-	-	-	-	-	-	-	N	-
20.07	Man	3895	The Pas Moraine	-	-	R	-	-	-	-	-	-	-	-
20.12	Man	8879	Winnipegosis Plain	-	-	-	-	-	-	-	-	-	-	N
20.15	Man	9094	Waterhen Lake Plain	-	-	L	-	-	-	-	-	-	-	-
20.20	Man	4567	Grindstone Point Lowland	-	-	L	-	-	-	-	-	-	-	-
20.301	Man	15739	Lake Winnipeg /north 2/3	-	-	-	-	-	-	-	-	-	-	N
21.03	Man	2962	Lac Du Bonnet Plain	-	-	L	-	-	-	-	-	-	-	-
21.04	Man	4020	Whiteshell River Plain	-	-	-	-	-	-	-	-	-	-	R

* N = National importance; R = Regional importance; L = Local importance

** *in sequence*: Peregrine Falcon, Whooping Crane, Piping Plover, Mountain Plover; Ferruginous Hawk, Burrowing Owl, Loggerhead Shrike; Least Bittern, Trumpeter Swan, Ross' Gull, Caspian Tern.

Aransas National Wildlife Refuge in Texas. The WBNP-Texas population increased from 43 birds (including 5 known breeding pairs) in 1966, to about 145 birds (including at least 30 breeding pairs) in 1989 (Cooch *et al.* 1988; E. Kuyt, CWS, *pers. comm.*). One breeding pair nesting in 1977 just south of the Northwest Territories-Alberta border (Kuyt 1978), in subregion 11.11, Buffalo River Plain, likely did so because of suitable wetland and landform features which could potentially accommodate additional nesting birds if the population continues its expansion. This subregion is therefore considered a nationally important priority for a **threatened species**.

In 1989, at least five subadult Whooping Cranes stopped their northward spring migration in south-central Saskatchewan where they spent the entire summer. There are other similar records during summer of Whooping Cranes in Saskatchewan: this is perhaps a consequence of an expanding population re-occupying historic range.

The most important stopover area for Whooping Cranes migrating from Wood Buffalo National Park to the winter range on the Texas coast is that portion of the Saskatchewan grainbelt from Lloydminster to Meadow Lake, then via Prince Albert to Wynyard, Indian Head and Swift Current, then back to Lloydminster. Whooping Cranes may remain in this area for up to three or four weeks during the fall migration period. Although many sites are used, some habitat subregions appear to be favoured within the staging area (B. Johns, CWS, *pers. comm.*). Individual birds, pairs or family groups may traditionally use the same staging sites (Kuyt 1984).

The ***Piping Plover*** is designated "Endangered" by COSEWIC. The Prairie provinces' 1989 breeding population of 930 adults is almost 25 percent of the continental population of 3952 birds; or, in other terms, is 66 percent of the Canadian population of 1414 birds (Goossen 1989). Population estimates are not based on identical survey techniques throughout the Prairie range, and therefore the provincial totals vary for similar time periods - particularly in Saskatchewan.

The Piping Plover's breeding range in the Prairie provinces includes the southeast-central portion of Alberta and the southern halves of Manitoba and Saskatchewan. One Saskatchewan breeding record is from the south shore of Lake Athabasca (Godfrey 1986). Waterbodies whereon the Piping Plover breeds are in "selected" portions of its range. The breeding populations resident on individual waterbodies may vary from one pair to over 500 birds estimated for Chaplin Lake, Saskatchewan, in 1984 (Harris *et al.* 1985).

Six habitat subregions with sites having more than 30 Piping Plover nests are nationally important (6 sites - all in Saskatchewan); 7 subregions with sites having 10 to 30 Piping Plover nests are regionally important; and 27 subregions with sites having fewer than 10 nests or breeding pairs are locally important.

Habitat for the Piping Plover, a shorebird, is vulnerable to drought, ongoing effects of water management projects, expanding agriculture, and grazing practices that allow cattle to disturb shallow wetland basins (Wershler and Wallis 1987, Goossen 1989). As of late 1989, a **Piping Plover Recovery Plan** is being developed to provide management guidance for the species.

The ***Mountain Plover***, designated "Endangered", was first documented as a breeding species of the Prairie provinces in 1979 (Wallis and Wershler 1981). It breeds only in a small area of native grassland in southeastern Alberta, although sightings near Val Marie in extreme southwestern Saskatchewan suggest breeding may also occur in that area. During 1979 to 1985, the "Lost River" population in Alberta fluctuated from a low of one pair, to a high of 11 adults with at least six nests (Wershler 1987). The scarcity of confirmed breeding habitat for this species supports the rating that all known recently occupied range is nationally important, and therefore two habitat subregions overlapping the known range are designated as such: 1.01 Milk River Plain, and 1.02 Sage Creek Plain. Availability of heavily grazed grassland appears to be a requisite for the Mountain Plover, and management of grazing is therefore important to maintain and perhaps enhance its range.

In Canada, the ***Ferruginous Hawk*** breeds only in the Prairie provinces. There has been a substantial reduction in breeding range since historical times (this being comparable to range reduction of the breeding Burrowing Owl). COSEWIC designated the Ferruginous Hawk a "Threatened" species in 1980 on evidence of a 50 percent reduction in its breeding range, which is closely associated with the Mixed-grass and Short-grass Prairie ecoregions (as in Figure 1).

In Saskatchewan, the Ferruginous Hawk is abundant in the 20 percent portion of its range that is adjacent to Alberta and Montana. Densities decline markedly toward the northeast (about 40 percent of the range); and in the remaining 40 percent of the range it has virtually disappeared (Houston and Bechard 1984). Schmutz (1987, 1989) identified a recent increase in breeding of the Ferruginous Hawk in southeastern Alberta, based upon population estimates of 1082 pairs in 1982 and 1772 pairs in 1987. This coincides with an increase in estimated ground squirrel numbers, and has apparently resulted in an infilling of recently occupied range, and not by an expansion into the range periphery. In Manitoba, the Ferruginous Hawk is restricted to the small extent of prairie in the extreme southwest. Beginning in the 1970s, an increase of the Ferruginous Hawk from years of no sightings to highs of 11 and 32 nests in 1987 and 1988, respectively, indicates a re-population of the Manitoba range (Schmutz 1989). Furthermore, the increase coincides with numbers recorded on Christmas Bird Counts (Warkentin and James 1988).

Ferruginous Hawk habitat is determined from our database, to which the most recent records from the mid-1980s are yet to be added, except for those in Manitoba. Such records likely would only enhance the documentation of core areas, rather than adding other focal areas outside of the main range (J. Schmutz, *pers. comm.*).

For the Ferruginous Hawk, rated habitat subregions are as follows:

Rating	Area (km^2)	Population	Sites (subregions)
National importance:	<1000	>15 pairs	1
	1000 to <3000	>30 pairs	1
	3000 to 6000	>40 pairs	0
	>6000	>50 pairs	1

Regional importance:	<1000	6 to 15 pairs	2
	1000 to <3000	10 to 30 pairs	1
	3000 to 6000	20 to 40 pairs	1
	>6000	30 to 50 pairs	1
Local importance:	<1000	< 5 pairs	18
	1000 to <3000	<10 pairs	28
	3000 to 6000	5 to 20 pairs	8
	>6000	10 to 30 pairs	2

The Ferruginous Hawk is primarily dependent upon ground squirrels for prey and is therefore generally restricted to areas of grassland with moderate amounts of cultivation (Schmutz 1989). The breeding population appears to be fairly stable or increasing slightly in portions of its range. Management options include: stabilizing ground squirrel populations, nest enhancement by artificial sites, protection of traditionally used tree sites from degradation by cattle, and monitoring interspecific competition of other raptors colonizing areas of grassland into which aspen bluffs are expanding (Schmutz 1989).

The ***Burrowing Owl*** is a "Threatened" species of the Prairie provinces. Its breeding range closely adheres to the Prairie Ecozone but it does not extend as far north as the ecozone boundary in Alberta and Saskatchewan (Wedgwood 1978). The breeding population is historically sparse; increasing during the early to mid-1900s when mixed farming was prevalent, and declining with the intensification of agriculture. In 1977, the population was estimated at 2000 pairs in the Canadian prairies, distributed as follows: 1280 pairs in Saskatchewan, 110 pairs in Manitoba, and 610 pairs in Alberta (Wedgwood 1978). More recently, the Prairie population has been estimated at 1948 pairs, distributed provincially as follows: 1200 pairs in Saskatchewan; 720 pairs in Alberta; 28 pairs in Manitoba (Haug 1989).

Ongoing threats to the Burrowing Owl primarily include habitat losses either directly from agricultural expansion, or indirectly by control of burrowing mammals that provide nesting habitat. Similarly, the impacts of road-kill mortality, shooting, secondary poisoning and predation are significant factors in population survival (Haug 1989).

Documentation of habitat for the breeding Burrowing Owl is based primarily upon the extensive surveys and questionnaire analyses of Wedgwood (1978). Additional surveys undertaken since the 1970s, have a variety of approaches for each province. However, habitat subregions of four size ranges are rated as follows:

Rating	Area (km^2)	Population	Sites (subregions)
National importance:	<1000	>15 pairs	0
	1000 to <3000	>30 pairs	3
	3000 to 6000	>50 pairs	1
	>6000	>100 pairs	2

Regional importance:	<1000	5 to 15 pairs	6
	1000 to <3000	10 to 30 pairs	5
	3000 to 6000	30 to 50 pairs	1
	>6000	50 to 100 pairs	1
Local importance:	<1000	<5 pairs	20
	1000 to <3000	<10 pairs	48
	3000 to6000	5 to 30 pairs	13
	>6000	10 to 50 pairs	4

Nationally important subregions for the Burrowing Owl in Saskatchewan and Manitoba are concentrated in an arc extending from the northwest of Lake Diefenbaker, southeasterly to the Regina area and to the extreme southwest in Manitoba.

The ***Loggerhead Shrike*** was designated a "Threatened" species by COSEWIC in 1986 on evidence of a range-wide decline in population. The Prairie provinces comprise most of its Canadian range, with some in southern Ontario and Quebec, and in the Maritimes. Breeding range of the Prairies extends from north-central to southern Alberta, through central and southern Saskatchewan, and into Manitoba, south and west of Lake Winnipeg (Godfrey 1986). Breeding Bird Survey (BBS) data between 1971 and 1982 indicated a decline in numbers throughout the Prairie provinces (Cadman 1985), where, as of the late 1980s, there were an estimated 3000 to 5000 pairs. In Saskatchewan, Cadman (1985) reported the Loggerhead Shrike is relatively common with high overall shrike densities (with a peak of 2.17 birds per route in 1969; and a low of 0.20 birds per route in 1981) compared to other parts of the Prairies. Alberta has the second highest average number of shrikes per BBS route total, with the species more common in southern Alberta. One of Canada's most concentrated breeding populations is in southwestern Manitoba.

Low numbers of the Loggerhead Shrike observed on BBS routes, and the fact that such routes have uneven coverage and distribution across the Prairies, precludes the use of BBS data for comparative mapping. The range-wide roadside survey completed in 1987 (Telfer *et al.* 1989) is therefore adapted to the Ecological Land Classification approach.

Shrike observations of the Prairies range to over 10 shrikes/100 km of survey route. Accordingly, habitat subregions are rated as follows: nationally important, >10 shrikes/100 km (6 subregions); regionally important, 7 to 10 shrikes/100 km (3 subregions); and locally important, 4 to 6 shrikes/100 km (28 subregions). All national and regional subregions are either in Saskatchewan, south of Saskatoon or in the Swift Current area, or in southwestern Manitoba.

Declines in Loggerhead Shrike numbers, in both Canada and the United States, coincide directly with losses of native prairie and parkland habitats. Only about 20 percent of pristine range remains (E. Telfer, CWS, *pers. comm.*).

The ***Least Bittern*** is a "Rare" species. Sandilands and Campbell (1987) estimated the Canadian population as 1000 to 1100 pairs, of which about 1000 pairs are in

Ontario and the remaining 100 pairs are scattered in Quebec, New Brunswick and Manitoba.

The Least Bittern was accidental in Manitoba prior to 1949, but has since established regular breeding at Delta Marsh and Lake Francis Marsh. The maximum number recorded is 12 birds breeding at Delta Marsh in 1956 (Dillon 1959) in habitat subregion 4.79 Delta Marshes, rated "nationally important."

The ***Trumpeter Swan*** was designated as "Rare" by COSEWIC in 1978 (Mackay 1978). A comprehensive survey in 1985 defined the Canadian population at 458 adult swans and 191 cygnets (McKelvey *et al.* 1988). As of 1989, the Canadian breeding range includes localized areas in the Yukon, the Northwest Territories, British Columbia, Alberta and Saskatchewan. Fall population numbers approximate 1800 birds (Shandruk 1989).

In Canada, almost 50 percent of Trumpeter Swans breed in the Grande Prairie region of Alberta and the adjacent area of British Columbia. There are also small pioneering flocks in Alberta, at Waterton Lakes, near Edson, Otter Lakes and Chinchaga River. In Saskatchewan, the Trumpeter Swan breeds only in the isolated Cypress Hills area of the southwest, where its documented decline is from three breeding pairs that produced 10 young in 1972, to one breeding pair in recent years that annually produces several young. There are no breeding records for the Trumpeter Swan in Manitoba.

For a continued increase of the breeding population, management techniques are required to encourage the Trumpeter Swan to pioneer new wintering areas south of the crowded Tri-state habitat of the United States.

Habitat classifications for the Trumpeter Swan, based on the abundance of breeding lakes within habitat subregions, are as follows:

Rating	Area (km^2)	Population	Sites (subregions)
National importance:	<2000	>10	1
	>2000	>20	1
Regional importance:	<2000	5 to 10	0
	>2000	10 to 20	1
Local importance:	<2000	1 to <5	8
	>2000	1 to <10	4

The ***Ross' Gull***, "very Rare" as a breeding species in Canada, breeds on Akudlik Marsh near Churchill, Manitoba, where up to three nests were recorded each year from 1978 to 1983. Akudlik Marsh is within habitat subregion 18.01 Rupert Creek Lowland, classified as nationally important. One other recent Canadian breeding site is near Bathurst Island, Northwest Territories. A sighting in September 1989 of 31 birds at Churchill, Manitoba, is unconfirmed as of early 1990 (P. Rakowski, CWS, *pers. comm.*).

The ***Caspian Tern***, a "Rare" species designated by COSEWIC, has a cosmopolitan breeding range with a widely scattered distribution of colonies in Canada. It usually nests on secluded sandy or rocky islands. The two major portions of its range include: lakes Winnipeg and Winnipegosis in Manitoba, and into east-central Saskatchewan; and from Lake Athabasca, Alberta, to Great Slave Lake, Northwest Territories (Godfrey 1986). Manitoba provides habitat for about 60 percent of the Canadian population (Martin 1978). A decline in breeding population from 2250+ nests in 1970 (Vermeer 1970) to less than 1400 nests in 1979 (Koonz and Rakowski 1985) has resulted, in part, from a large colony being abandoned because of road construction. Furthermore, the Caspian Tern is vulnerable to human disturbance and toxic substances in the relatively abundant fish species upon which it preys (Martin 1978). The Caspian Tern does, however, adapt well to water level changes by utilizing alternative sites on reefs, sandy spits and islands.

The 19 known breeding sites of the Caspian Tern in the Prairie provinces are classified as: 10 sites of national importance with greater than 50 nests; 8 sites of regional importance with 10 to 50 nests; and 1 site of local importance with less than 10 nests (**Table 17**).

There are four nationally important subregions; three regionally important; and one locally important (as in Table 16).

Conservation measures for the Caspian Tern include protection of breeding colonies from human disturbance and monitoring levels of chemical pollutants in fish.

Table 17. Breeding sites of the Caspian Tern in the Prairie provinces.

Unit No.	Prov	Rank+	Habitat subregion	Wetland site(s)
8.81	Sask	***	Beaver River Plain	– Dore Lake
15.05	Man	***	Big Sand Lake Plain	– Sand Island of Southern Indian Lake
20.12	Man	***	Winnipegosis Plain	– Chartrand Island – East of Denbeigh Point – Goodman Island (east of Spruce Island) – Goose Islands – Sealy Island
20.301	Man	***	Lake Winnipeg /north 2/3	– Little George Island – S.E. of Little Sandy Island – St. Martin Island
8.301	S-A	**	Lake Athabasca	– Egg Island
13.17	Man	**	God's Lake Plain	– God's Lake
20.12	Man	**	Winnipegosis Plain	– Coleman Island – Sagemace Bay of Lake Winnipegosis
20.301	Man	**	Lake Winnipeg /north 2/3	– Pelican Island – Reindeer Island
21.04	Man	**	Whiteshell River Plain	– Crowduck Lake /east – Crowduck Lake /south
2.302	Sask	*	Last Mountain Lake	– Last Mtn. Lake /north

+ *** National importance
** Regional importance
* Local importance

7.0 HABITAT USE BY SHOREBIRDS

The Prairie provinces provide 36 species of shorebirds with breeding and/or staging habitat (Godfrey 1986).

Relatively little is known about *breeding* shorebird abundance and distribution in Prairie Canada, except for the Piping Plover and Mountain Plover - two "Endangered" species discussed on pages 88 and 89. However, during spring and fall migration periods, large numbers of Nearctic-breeding shorebirds depend upon critical wetland habitats of coastal and inland areas (including Prairie Canada) for staging (Morrison 1984, Morrison and Myers 1987, Morrison and Ross 1989).

The northward spring migration occurs from early May to mid-June (H.L. Dickson, CWS, *pers. comm.*). Peak spring migration is in the latter two weeks of May (Colwell *et al.* 1988). The southward fall migration occurs from early July into September. "Pulses" in the abundance of shorebirds at a site during the fall migration period reflect the arrival and departure of different ages, species and possibly sexes of shorebirds.

In 1986, the Western Hemisphere Shorebird Reserve Network (WHSRN) was initiated by the International Association of Fish and Wildlife Agencies and World Wildlife Fund. This network, represented by government agencies and private organizations of the Western Hemisphere, enables a system of internationally recognized reserves to be identified and maintained for protection of major shorebird staging sites and wintering sites throughout North and South America. There are two types of reserve: a *Hemispheric Reserve* with more than 250 000 shorebirds annually (or >30 percent of the flyway population of a single species); and a *Regional Reserve* with more than 20 000 shorebirds annually (or >5 percent of a flyway population) (Morrison 1987).

The impetus provided by the WHSRN has resulted in shorebird aerial and ground surveys being conducted throughout Prairie Canada in the late 1980s (Dickson and Smith 1988, Smith and Dickson 1989, and H.L. Dickson, CWS, *pers. comm.*).

Nationally important staging sites are based upon the criteria for Hemispheric and Regional WHSRN sites. **Regionally important** staging sites are used by 5000 to 20 000 shorebirds. **Local** sites are those used by 2000 up to 5000 shorebirds annually.

In considering "turnover," a factor of 2.0 times the largest number of shorebirds at a site on a single day may be equivalent to the sum total of shorebirds seasonally using a site. Therefore, before application of turnover rate, staging numbers of 2500 up to 10 000 birds on a given day equate to a **regionally important** site, and likewise, 1000 to 2500 birds equate to a **locally important** site.

Populations of shorebirds in the Prairie provinces are affected by drought conditions and likely other factors affecting water levels such as drainage schemes. Various sites for staging shorebirds may not be used every year. For staging shorebird species, there are 18 nationally important sites; 25 regional sites; and 51 local sites (**Figure 12** and **Table 18**). Notably, most sites are in Saskatchewan.

Table 18. Sites and habitat subregions - staging shorebirds.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
2.210	Sask	1312	***	Qu'Appelle R./Lk. Dief. to Lumsden	PELICAN LAKE
2.301	Sask	1431	***	Lake Diefenbaker	LAKE DIEFENBAKER
2.302	Sask	387	***	Last Mountain Lake	LAST MTN. LK. /NORTH
2.61	Sask	1699	***	Old Wives Lake Basin	OLD WIVES/CHAPLIN LAKES
2.76	Man	2703	***	Boissevain-Hartney Plain	WHITEWATER LAKE
4.10	Alta	1710	***	Ribstone Plain	SOUNDING LAKE
4.11	A-S	1843	***	Dilberry Plain	KILLARNEY LAKE
4.13	A-S	2213	***	Edgerton Plain	MANITO/WELLS LAKES
4.13	A-S	"	***	Edgerton Plain	REFLEX / FRESHWATER LAKES
4.20	Alta	2853	***	Beaverhill Lake Plain	BEAVERHILL LAKE
4.23	Sask	5779	***	N. Saskatchewan River Plain	BLAINE LAKE
4.30	Sask	7509	***	S. Saskatchewan River Plain	PORTER LAKE
4.41	Sask	8299	***	Ponass Lakes Plain	LENORE LAKE
4.43	Sask	1755	***	Quill Lakes Basin	QUILL LAKES
4.81	Man	2757	***	Shoal Lakes Plain	SHOAL LAKES
4.83	Man	2853	***	Lower Red River Plain	OAK HAMMOCK MARSH
8.36	Alta	1724	***	Winagami Lake Plain	KIMIWAN LAKE
18.01	Man	3858	***	Rupert Creek Lowland	CHURCHILL /AREA
1.03	Alta	687	**	Pakowki Plain	PAKOWKI LAKE
2.12	S-A	1514	**	Medicine Hat Plain	OPUNTIA LAKE
2.14	S-A	4057	**	Schuler Upland	CHAPPICE LAKE
2.26	Alta	1374	**	Crowfoot Plain	NAMAKA LAKE
2.36	Alta	610	**	Grassy Island Plain	GRASSY ISLAND LAKE
2.37	Alta	891	**	Monitor Hills	GOOSEBERRY LAKE
2.45	Sask	1358	**	Swift Current Creek Valley	REED LAKE
2.69	Sask	2427	**	Tramping Lake Plain	MUDDY LAKE
2.75	Sask	4740	**	Upper Qu'Appelle Plain	KUTAWAGAN LAKE
4.10	Alta	1710	**	Ribstone Plain	METISKOW LAKE
4.10	"	"	**	Ribstone Plain	SUNKEN LAKE
4.12	A-S	2734	**	Provost Upland	CACTUS/COSINE LAKES
4.12	A-S	"...	**	Provost Upland	GILLESPIE LAKE /AREA
4.13	A-S	2213	**	Edgerton Plain	BAXTER LAKES
4.13	A-S	"	**	Edgerton Plain	CIPHER LAKE
4.20	Alta	2853	**	Beaverhill Lake Plain	BITTERN LAKE
4.206	Sask	1986	**	Qu'Appelle R./Lumsden to bdry.	FAIRY HILL MARSH
4.26	Sask	3507	**	Cutknife Plain	KILLSQUAW LAKE
4.26	"	"	**	Cutknife Plain	WILKIE LAKE
4.27	Sask	1570	**	Cutknife Hills	GRILL LAKE
4.36	Sask	3741	**	Minichinas Hills Upland	BUFFER LAKE

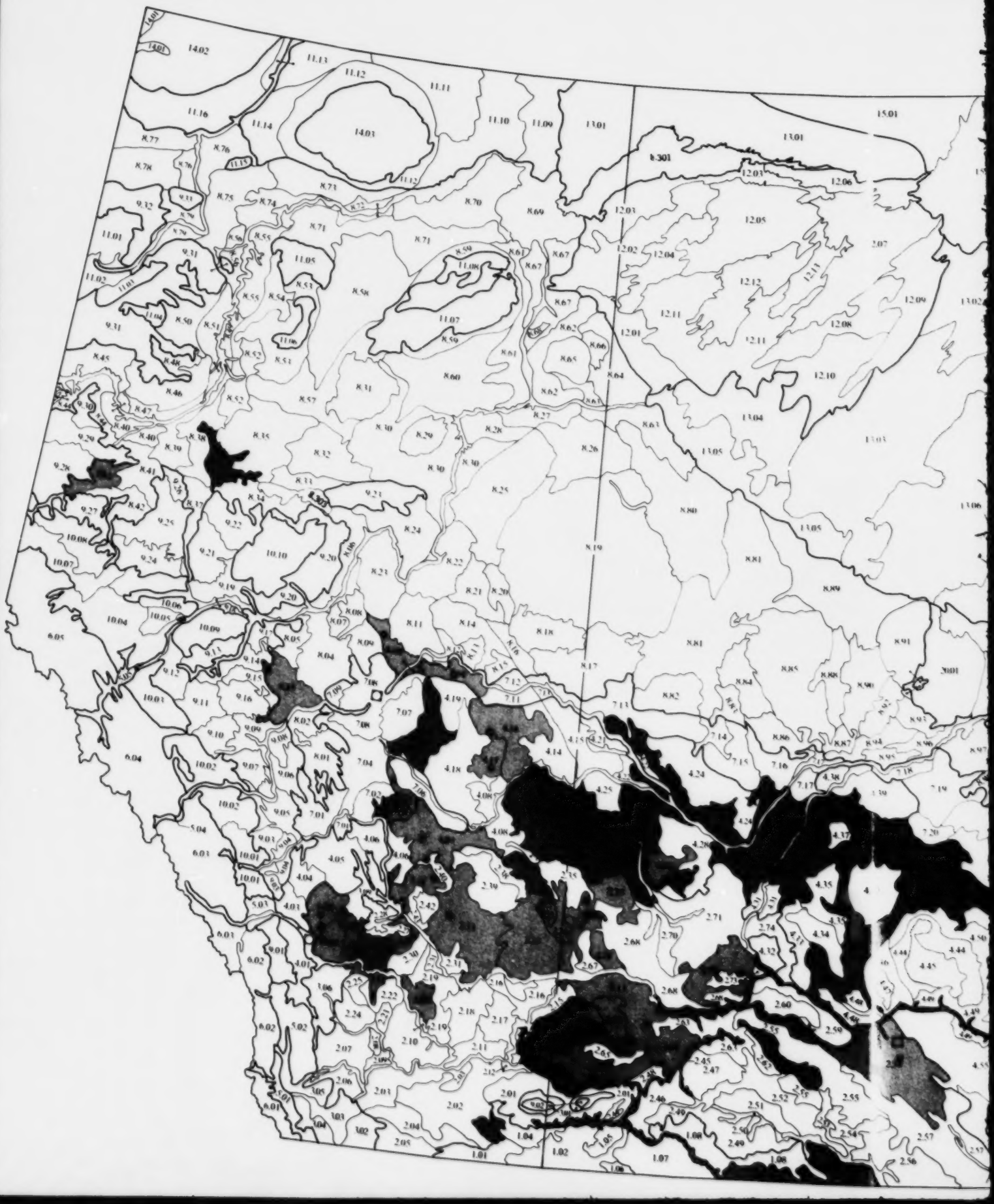


Fig. 12 Staging shorebird habitats

Table 18. (continued...2) Sites and habitat subregions - staging shorebirds.

Unit No.	Prov	Area (km^2)	Rank+	Habitat subregion	Wetland site(s)
4.40	Sask	1905	**	Tiger Hills Upland	MCINTYRE LAKE
4.40	"	"	**	Tiger Hills Upland	MIDDLE LAKE
7.03	Alta	691	**	Buffalo Lake Plain	BUFFALO LAKE /AREA
7.03	"	"	**	Buffalo Lake Plain	RYDER LAKE

+ *** National importance
** Regional importance

Table 18a. Sites of local importance for staging shorebirds.

Unit No.	Prov	Habitat subregion	Wetland site(s)
1.09	Sask	Poplar River Plain	Fife Lake
1.201	Sask	Frenchman River/Alta. to U.S.A.	Cypress Lake
2.13	S-A	Bigstick Lake Plain	Crane Lake; Snakehole Lake
2.20	Alta	Lake Newell Plain	San Francisco Lake
2.210	Sask	Qu'Appelle R./Lk. Dief. to Lumsden	Eyebrow Lake; Kettlehut Lake
2.23	Alta	Blackfoot Plain	McGregor Lake
2.26	Alta	Crowfoot Plain	Deadhorse Lake; Eagle Lake
2.29	Alta	Deadhorse Lake Upland	Mattoyekiu Lake; Seiu Lake
2.32	Alta	Richdale-Cessford Plain	Coleman Lake
2.33	A-S	Oyen Upland	Gregorson's Lake; Teo Lakes
2.34	S-A	Sibbald Plain	Dewar Lake
2.41	Alta	Chain Lakes Plain	Chain Lakes
2.58	Sask	Regina Plain	Buck Lake
2.61	Sask	Old Wives Lake Basin	Bishopric Slough
2.64	Sask	Antelope Lake Plain	Antelope Lake
2.66	Sask	Great Sandhills	Ingebright Lake
2.72	Sask	Coteau Hills	Luck Lake
3.07	Alta	Serviceberry Creek Plain	McElroy Slough; "Three Sloughs"
3.08	Alta	Rosebud Creek Plain	Benaman Slough; Twin Lakes
4.02	Alta	Strathmore Plain	Irricana Sloughs
4.07	Alta	Castor Plain	Gough Lake; Marion Lake
4.13	A-S	Edgerton Plain	Seagram Lakes
4.16	Alta	Innisfree Plain	Birch Lake
4.17	Alta	Birch Lake Plain	Vernon Lake
4.20	Alta	Beaverhill Lake Plain	Demay Lake; Dusty Lake
4.26	Sask	Cutknife Plain	Wilkie Lake
4.27	Sask	Cutknife Hills	Jay Lake
4.29	Sask	Whiteshore Lake Plain	Aroma Lake
4.30	Sask	S. Saskatchewan River Plain	Burke Lake; Clavet Slough; Pelican Lake; Rice Lake; Slough W. Porter Lake
4.40	Sask	Tiger Hills Upland	Basin Lake; Jumping Lake
7.03	Alta	Buffalo Lake Plain	Stinky Lake
7.05	Alta	Bashaw Upland	Red Deer Lake
7.10	Alta	Whitford Plain	Whitford/Rush Lakes
7.35	Man	Red River Delta	Netley Marsh
8.03	Alta	Chip Lake Plain	Chip Lake
8.10	Alta	Redwater Plain	Wakomao Lake
8.43	Alta	Clairmount Plain	Ferguson Lake

8.0 HABITAT USE BY NON-GAME BIRDS

Over 150 species, primarily breeding passerines, are associated with terrestrial upland habitats, and are inconspicuous because of their small size and habits.

In the Prairie provinces, our knowledge of Non-game birds is largely restricted to a general understanding of their distribution, broad habitat requirements and life history (as in Salt and Salt 1976). Species lists have been prepared for numerous special areas, such as National and Provincial Parks, Natural Areas and Migratory Bird Sanctuaries. In addition, the Breeding Bird Survey (BBS), a program designed to monitor numbers and diversity of birds along roadside routes during the breeding period, is conducted annually in many parts of the Prairie provinces (Robbins *et al.* 1986).

No systematic surveys of either staging or breeding Non-game birds on sufficient representative habitats are available to enable meaningful comparison of habitat subregions. Therefore, general habitat requirements, vulnerability and degree of endemism in the Prairie provinces are mentioned relative to elsewhere in North America.

8.1 Breeding

Non-game birds require breeding habitats that enable mature individuals to nest, raise young and provide for post-fledgling care during a variable number of days, dependent upon species. Nest sites include: cavities that may or may not be excavated by the occupant (e.g., bank nests and tree cavities); open-cup nests in trees, shrubs or on the ground; and enclosed nests, constructed to hang or integrate into the structural features of the associated vegetation.

The nature of impacts by humans to breeding habitat is dependent upon the individual species. Most Non-game species are solitary breeders, with each pair maintaining a territory generally exclusive of others of the same species. Those species that breed in colonies are more vulnerable to the loss of a nesting area than are others more widely distributed on the available habitat. Local site-specific habitat changes, such as road construction across a river valley, may destroy a site for a breeding colony of Cliff Swallows. In contrast, more extensive habitat changes such as forest fires, forest harvesting or grassland cultivation over a wide area may lead to declines in warbler populations associated with older-growth forests, or of sparrows dependent upon native grassland for breeding habitat.

Forests

Forest habitats comprise a variety of seral stages. Two examples are – "young communities" represented by open herb/shrub lands (e.g., post- forest fire), and "old communities" of mature riparian woodlands (e.g., climax forest). Each habitat supports a unique association of bird species. Those with specific habitat requirements, and those unable to adapt to changes, are most at risk of demise. Only a diversity of expansive forest habitats will ensure maintenance of forest bird populations. For example, Magnolia and Blackburnian Warblers, and many cavity-nesting species, require mature mixed-wood and coniferous forest habitats for breeding. These same forests are aggressively sought after by industrial companies producing lumber and pulp. Of further concern is the lengthy regeneration period of Boreal Forests because of slow tree growth. Once cut, a

northern forest may not provide "resident" bird species with suitable habitat for up to 100 years or more. Forest conservation is becoming an increasingly important responsibility.

Neotropical migrants, including those species that breed in the Prairie provinces and winter in the tropic Americas, furthermore face major habitat losses in both areas. Diamond (1986) identified 31 species that are particularly vulnerable. Recent declines of these species' populations, and the projection for these trends to continue, are alarming. The mixed-wood forests of the Prairie provinces support a rich association of some 23 species of Neotropical migrants as breeders whose capacity to withstand major habitat loss and/or change is unknown.

The most serious impact upon Non-game migratory bird populations of the Prairie provinces is the incremental loss of breeding habitat. Cultivation is usually an irreversible land use; thus, the survival of grassland species of migratory birds is of particular concern (Anonymous 1988). Endemic species - those dependent upon the Prairie provinces for the major proportions of their breeding range - are of greatest concern.

Primary endemic species are those with more than 50 percent of their continental breeding range in the Prairie provinces. Species include: ***Sprague's Pipit***, ***Baird's Sparrow***, ***LeConte's Sparrow***, ***Sharp-tailed Sparrow*** and ***Clay-colored Sparrow*** (**Table 19**). Significant continuous declines in breeding numbers of Baird's Sparrow have resulted in its listing as "Threatened" by COSEWIC in 1989. LeConte's Sparrow has had a slight negative trend in breeding numbers in the eastern part of its range. The Clay-colored Sparrow has had an increase in breeding numbers in Canada offset by an equal decrease in the United States. There are insufficient data for Sprague's Pipit and Sharp-tailed Sparrow (Robbins *et al.* 1986).

Table 19. Breeding habitats of endemic Non-game migratory birds with greater than one-half of their North American range in the Prairie provinces.

Species	Ecozone	Habitat preference
Sprague's Pipit	Prairie	Native grassland, dry unplowed.
Baird's Sparrow	Prairie	Native grassland, dry with scattered low shrubs.
LeConte's Sparrow	Prairie/Boreal Plains	Native grassland, moist wet grassy marshes and edges of wetlands.
Sharp-tailed Sparrow	Prairie/Boreal Plains	Marshlands, wet meadows and edges of wetlands.
Clay-colored Sparrow	Prairie/Boreal Plains	Shrublands, aspen groves and woodland edges.

Moderately endemic species are those with 25 to 50 percent of their North American breeding range within the Prairie provinces. There are **28 species**, (including several discussed in previous Chapters): ***Horned Grebe, White-winged Scoter, Bufflehead, Yellow Rail, Piping Plover, Willet, Greater Yellowlegs, Short-billed Dowitcher, Marbled Godwit, Ring-billed Gull, California Gull, Franklin's Gull, Bonaparte's Gull, Forster's Tern, Black Tern, Common Tern, Yellow-bellied Sapsucker, Yellow-bellied Flycatcher, Philadelphia Vireo, Tennessee Warbler, Cape May Warbler, Bay-breasted Warbler, Palm Warbler, Mourning Warbler, Connecticut Warbler, Rose-breasted Grosbeak, Chestnut-collared Longspur, McCown's Longspur***. Generally slight but significant increases in breeding numbers between 1965 and 1979 on at least part of their ranges are reported for five species: *Willet, Yellow-bellied Flycatcher, Tennessee Warbler, Cape May Warbler* and *Rose-breasted Grosbeak* (Robbins *et al.* 1986). Similarly, there is a slight decline in breeding numbers of the *Philadelphia Vireo*, and a substantial decline in the *Franklin's Gull* (see pages 73 and 74). Breeding Bird Surveys are variable, and for many moderate endemics data are insufficient to determine trends (Robbins *et al.* 1986). Flycatchers, warblers, vireos and grosbeaks are Neotropical migrants facing unique problems.

Apart from the above concerns, these particularly vulnerable groups of endemics require: monitoring of populations, determination of breeding habitat requirements and determination of vulnerability to impacts, - in addition to habitat protection.

8.2 Staging

Concentrations of Non-game bird species are poorly documented during the post-breeding and migration periods (the exceptions being large numbers of swallows or blackbirds at post-breeding roosts, or longspurs during migration). In most cases there are insufficient data for comparison of habitat subregions. Some notable staging areas, often associated with major topographic features such as waterways, river valleys, hills or mountain ranges, or sharp changes in habitats (forest to grassland edge), all serve to funnel or concentrate migrating birds. Habitat protection and management planning for the other species groups included in this report coincidently protect staging habitats for Non-game species. However, much needs to be learned about spring and fall staging habitats in the Prairie provinces.

9.0 CONCLUDING REMARKS

The Prairie provinces of Canada - Alberta, Manitoba and Saskatchewan - support a diversity of birds (almost 400 species) within seven broad ecozones: Taiga Plains, Taiga Shield, Hudson Plains, Boreal Shield, Boreal Plains, Prairie, and Montane Cordillera.

This report synthesizes our knowledge of the most important habitat sites and areas for migratory birds within the three provinces. Species' having generally similar habitat requirements are treated as a group, including: Ducks; Geese; Colonial waterbirds; Rare, Threatened and Endangered birds; Shorebirds; and Non-game birds.

Identification of, and priority given to, individual habitat areas and sites is a reflection of use by species and numbers of birds (within the 1970s and more so in the 1980s). In particular, Table 5 lists, by ecozone and habitat subregion, those areas and sites having singular or multiple "biological values" for birds at the national, regional and local levels of importance. The highest-ranked habitat subregions Prairie-wide are illustrated in Figure 2 and identified in Tables 2, 3 and 4. Currently, there are 9 subregions of National importance; 46 of Regional importance; and 113 of Local importance. These habitats are components of dynamically changing ecosystems and therefore the rank assigned to sites may change in the future.

Important habitat areas and sites exist in all ecozones and the carrying capacity for wildlife on these areas will continue to change. Permanent loss of native habitat is occurring, for example, as a result of: plowing native prairie grasslands, urban expansion, mineral extraction, flooding riparian woodlands for dams, and clearing and reforestation of northern woodlands and forests.

Furthermore, degradation and changes to native habitats is occurring as a result of: long-term over-grazing of grasslands, woodlands and forest fringe areas; modification of natural events such as fire on grasslands and forests; drought; acid rain; global warming; use of chemical herbicides and pesticides; and improper waste disposal. Even those sites afforded protected status, such as sanctuaries, refuges, wildlife areas, ecological reserves and parks, continue to suffer changes from impacts beyond and/or within their borders.

Migrant bird species must contend with changing habitat conditions, not only in Canada, but also in southern wintering areas and along their migration routes. Birds inhabiting Canada's Prairie provinces for part of the year, during breeding or migration, may be profoundly affected by many "external" influences - oil spills in the Atlantic or Pacific oceans, clearing of the Brazilian rain forest, wetland drainage in Florida or hurricanes in the Gulf of Mexico - are a few examples.

This report does not attempt to establish criteria for ranking "threats" against habitat areas and sites because these change over time, sometimes drastically. When conservation measures are contemplated for an important site, threat plus many other modifiers, such as site ownership, site availability, or imminence of the threat, must all be weighed. In many instances an agency or group can evaluate these factors at a given time and then pursue a unique solution for protection.

Certain bird species are more vulnerable to habitat loss or change than others. Factors include species' biology, population size, distribution, habitat preference, and/or tolerance of human activity. COSEWIC has assigned status to 17 bird species of the Prairie provinces. These species, in particular, and those which breed primarily in Canada (including the Prairie provinces), are of special concern. In many cases, population estimates (baseline and trend information) are inadequate or lacking for these and even more common species. Therefore, information on habitat preference and suitability needs to be collected for most species during one or more stages of its life cycle - breeding, moulting or staging. The population for one species - the Eskimo Curlew - is so low that it precludes our ability to gather sufficient information to develop a conservation strategy.

User groups and agencies interested in birds and their conservation are encouraged to contribute to our factual knowledge of bird use of habitat sites so as to ensure that an update of this document, when produced, is as complete and accurate as possible.

Breeding bird atlases, which are currently underway in Alberta and Saskatchewan, are examples of projects which help incorporate widespread observations into meaningful contributions to our knowledge of bird distribution in the Prairie provinces.

Please submit new survey data to the regional Habitat Conservation Section, Canadian Wildlife Service, Conservation and Protection, Environment Canada, at:

2nd Floor
4999 - 98th Avenue
Edmonton, Alberta
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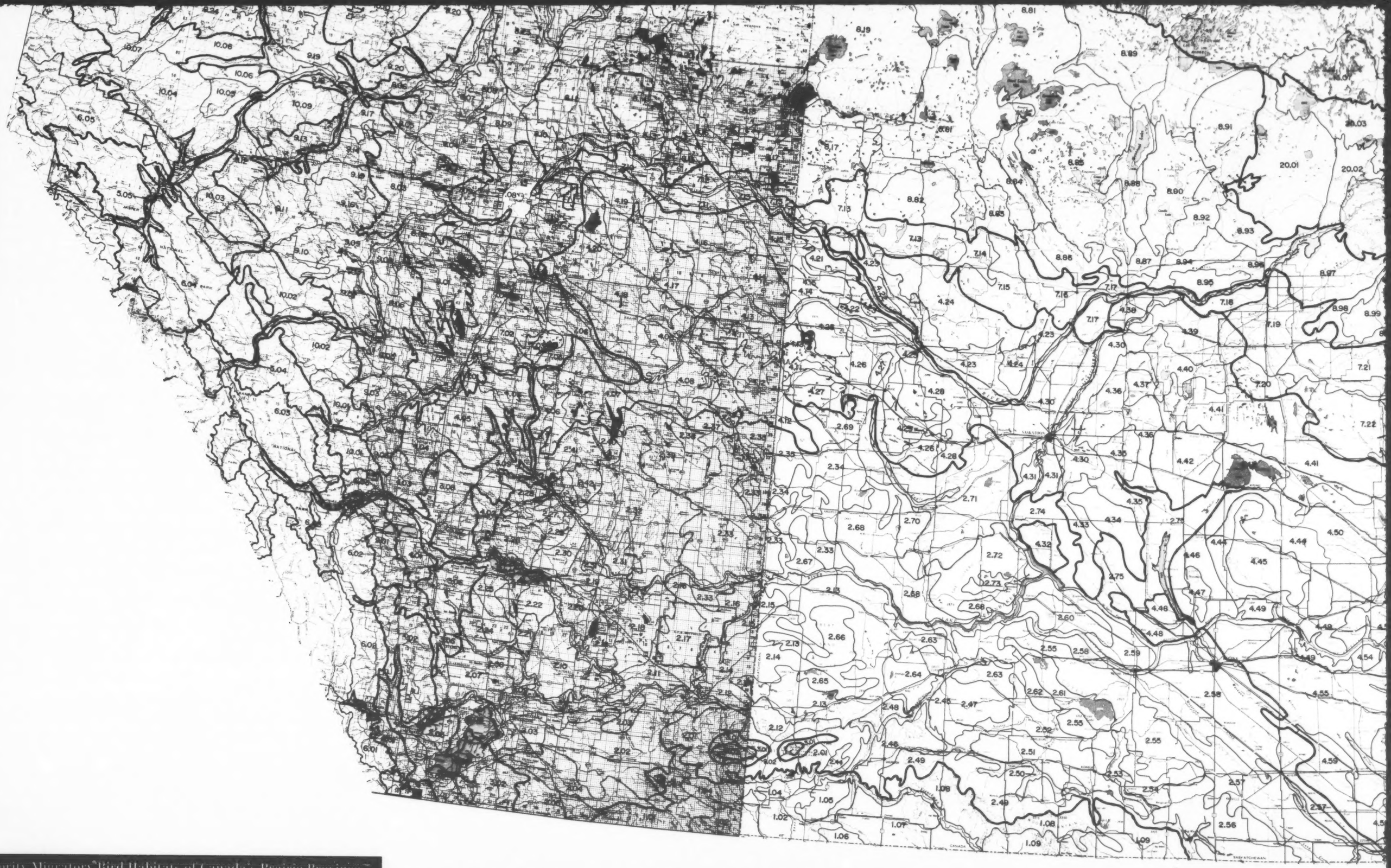

Prairie-wide location map with
Ecological Land Classification boundaries